AN ECONOMIC & SOCIAL PERFORMANCE FRAMEWORK FOR ENGINEERING AND CONSTRUCTION FIRMS OPERATING IN DEVELOPING COUNTRIES

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While most corporate engagement with global poverty centres on philanthropy, the opportunities for firms to contribute to poverty reduction through their core business activities are significantly greater. This particularly applies to the engineering and construction sector due to the significant interface of its value chain with local economic and social development and the fundamental societal importance of creating and maintaining infrastructure. There is broad scope for firms within this sector to identify mutual beneficial action to advance business strategy and contribute to local development and poverty reduction. Drawing upon Porter and Kramer's model for strategic corporate social responsibility (CSR), the Economic and Social Performance Framework (or ESPF) has been developed for engineering firms to identify these mutually beneficial or 'shared value' opportunities. The ESPF has been applied to the operations of a large engineering services joint venture in the oil and gas industry in Timor Leste, and it was found to be a useful tool in identifying shared value opportunities to support the joint venture's business objectives.

Keywords: Poverty Reduction, Developing Countries, Corporate Social Responsibility, Corporate Strategy, Competitiveness.

INTRODUCTION

There are a growing number of corporations with an interest in poverty and sustainable development in developing countries. Organisations such as the Global Compact, World Business Council for Sustainable Development and Business Action for Africa demonstrate the scale of this interest within the corporate sector. Outside these multi-member platforms, individual firms typically engage with poverty through philanthropic activities. This may be in the form of donations to charitable organizations, support for staff volunteering or running small community service programmes around their developing country operations. The impact of these activities will always be limited relative to the size of the problem.

It is widely accepted that the private sector has a crucial role to play in poverty reduction through generating economic growth (Department for International Development 2006). However, firms can make important positive contributions to poverty reduction and the Millennium Development Goals (MDGs) not just through their role in generating growth, but also by the way that they conduct their core business operations (World Bank Institute 2006). It is increasingly recognized that positive impacts on poverty through core business alignment rather than philanthropic approaches are more substantial, scaleable and sustainable (World Business Council for Sustainable Development 2005). These impacts include greater levels of direct and indirect local employment, advancement of productive skills, a more competitive local enterprise sector, local infrastructure development and more effective local institutions.

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In a developing country context there is a strong mutual interest in development between the corporate sector and the host society. These societies need the positive social and economic benefits provided by private sector activity. Firms gain from a productive and stable society in a multitude of ways including access to a capable workforce, reliable supply chains, supporting infrastructure, and the presence of good governance and the rule of law. This mutual dependence and common interest in development allows opportunities to create 'shared value' i.e. outcomes that benefit both business and society (Porter & Kramer 2006).

This opportunity for shared value is particularly strong in the engineering and construction sector. The activities of the sector are of fundamental societal importance i.e. the creation and maintenance of essential social and economic infrastructure. Improved infrastructure helps reduce poverty directly by improving the access of poor people to services such as clean water and sanitation, health and education and by protecting them against humanitarian disasters. It also contributes indirectly through enhancing economic growth, raising agricultural productivity, reducing transport costs and generating income and employment (Jahan & McCleery 2005). In addition, engineering and construction activities by their nature tend to have a large physical, social and economic 'footprint'. The scale of this multi-dimensional footprint provides a significant interface with a broad scope for mutually beneficial activities.

The size of this opportunity is magnified when the broader range of engineering activities outside public infrastructure is also considered. The extractive industries (oil, gas and mining), which are the actual or potential major source of economic wealth for many countries in Sub-Saharan Africa and Asia, require the involvement of engineering services in planning, design, construction, operation and maintenance. The extent of this involvement can be substantial; Engineering, Procurement and Construction (EPC) contractors may be responsible for managing up to ninety percent of the value of potential employment and procurement opportunities in the construction phase of such projects (Overseas Development Institute 2005).

Recent forecasts indicate that by 2015 up to 80 percent of expenditure on new infrastructure will be in developing countries (Henry 2004). In the energy sector alone, almost half of total energy investment over the three decades to 2030 will take place in developing countries where production and demand are expected to increase most; this equates to approximately US$8 trillion, or US$270 billion a year in investment (International Energy Agency 2004). Even in Africa, an area that has historically experienced chronic under-investment is seeing increased expenditure, facilitated in part by the creation of the Infrastructure Consortium for Africa (Department for International Development 2006). This expansion has been informed by the Report of the Commission for Africa (2005), which recommended that to meet the MDGs the region requires additional expenditure on infrastructure of US$10 billion a year up to 2010 with a further increase to $US20 billion a year for the following five years.

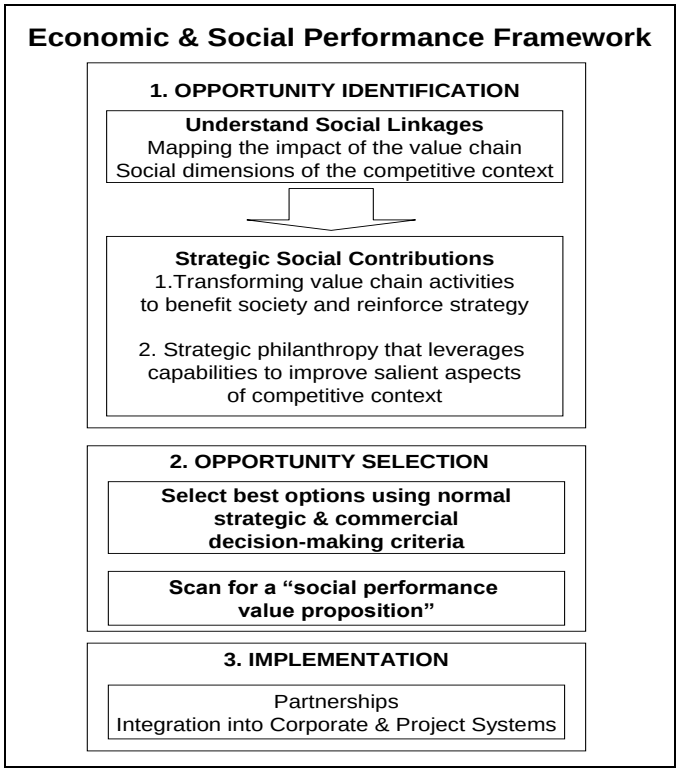
The size of the future market for engineering services, the opportunities for mutual benefits, and the urgency of the problem of poverty reduction create a strong imperative for developing a systematic approach for enhancing shared value. Engineers Against Poverty (EAP), in partnership with the Overseas Development Institute Business and Development Performance Programme (ODI), initially developed the Economic and Social Performance Framework (ESPF) as a contribution to this task, focusing on the opportunities presented by large engineering contractors in the oil and gas industry. It is presented in this paper by EAP as a general method, drawing substantially upon a model for strategic CSR developed by Porter and Kramer (2006). It is intended to be applicable for engineering contractors and consultants operating in a broad

range of sectors and geographical contexts. The ESPF has been successfully used in practice in Timor Leste (see Case Study below) and the authors are currently seeking additional opportunities for field application.

ECONOMIC & SOCIAL PERFORMANCE FRAMEWORK

The ESPF analysis is conducted in a similar manner to a strategic planning or risk assessment exercise, using a multi-disciplinary senior management team with knowledge of local operations and competitive context. It may be beneficial to also involve external expertise from the local context (e.g. local academia or social development consultants). The analysis should be conducted as early as possible in the project life cycle or involvement in a particular country or region. Paulson (1976) highlighted how decisions made in the earliest stages of projects have a relatively higher impact and lower cost. It follows from this that when socially beneficial strategies are integrated early in the design process, they are more likely to influence project outcomes and less likely to incur cost premiums. **Figure 1** presents an overview of the method.

Figure 1 – ESPF Method Overview



Opportunity Identification

The first step in the ESPF is to identify the range of possible opportunities to make positive contributions to local social and economic development while contributing to business strategy. In the initial instance, this requires an understanding of the two major categories of interaction between a firm and its host society (Porter & Kramer 2006):

- *Value Chain Linkages* – Almost every activity in a firm's supply chain touches on communities in which the firm operates, creating either positive or negative social consequences.
- *Competitive Context Linkages* – Every firm operates within a competitive context, which significantly affects its ability to carry out its strategy especially in the longer term. Social conditions form a key part of this context particularly in developing countries.

Through the substantial array of likely linkages, the analysis then seeks opportunities to (ibid.):

- Transform value-chain activities to benefit society while reinforcing the firm's corporate strategy.
- Make strategic external contributions to improve salient areas of the firm's competitive context.

Two summary tables have been developed to facilitate this analysis, drawing on previous field research into the social aspects of engineering in developing countries (EAP & ODI 2003, 2004a, 2004b). **Table 1** examines typical value chain linkages through project design and delivery, as well as the key supporting functions of procurement, human resources management and financial management. **Table 2** examines the four interrelated elements of competitive context from Porter's "diamond" model of competitiveness (Porter 1990), and the social dimensions of each that are typically relevant to engineering activities. These tables are not comprehensive and there are also likely to be location and sector-specific opportunities; however they can be used as a model to guide the analysis of the ESPF team.

Competitive context generally attracts less attention than value chain impacts; however competitive context can have far greater strategic importance for both companies and societies (Porter & Kramer 2006). One advantage for engineering firms in seeking shared value opportunities through the competitive context is that it reduces the constraints of aligning contributions with client requirements on individual contracts. There is also an increasing recognition of the significant role engineering and construction firms can play in contributing to the broader capacities of developing societies. The United Nations Millennium Project Task Force on Science Technology and Innovation explored this role in the context of the MDGs. The Task Force identified the importance of 'technological learning', a process of building individual and societal level capacities to apply knowledge and innovation to further economic and social improvement. The Task Force noted that (2005: 2): "Infrastructure development provides a foundation for technological learning, because it involves the use of a wide range of technologies and complex institutional arrangements. Policymakers need to recognize the dynamic role infrastructure development can play in economic growth and take the initiative in acquiring the knowledge available through international and indigenous construction and engineering firms".

Table 1 – Shared Value Opportunities in the Engineering and Construction Value Chain

Business-Society Interactions in the Value Chain (derived from Porter & Kramer 2006)		Example Shared Value Opportunities	Societal Benefits	Business Benefits
Project Design & Delivery	• Integration of client (or national/local) poverty reduction objectives into design.	• Alignment of design and delivery of project with the needs of local poor communities.	• Meeting basic needs of local communities.	• Reduced risk (reputation, social). • Greater user/customer acceptance.
	• Project environmental, social & community impacts.	• Comprehensive environmental and social impact analysis (ESIA).	• Minimize negative impacts on local communities.	• Reduced risk (regulatory, reputation, social).
	• Utilisation of labour-based technologies and construction methods.	• Suitable works for application of labour-based methods include: general earthworks; road construction and maintenance; low level bridges; small dams and irrigation structures; water and sewerage reticulation; storm water drainage systems; low voltage electrical reticulation & electrification; and materials manufacture. • Even with large complex projects there are opportunities to use labour-based construction methods for sub elements of work or ancillary infrastructure.	• Additional income and skills for local people. • Evidence from a broad range of developing countries has shown that labour-based approaches created between three and five times as much employment and achieve cost savings of between 10-30 per cent over equipment intensive methods of construction (ILO, 2003).	• Reduced costs. • Supporting 'social license to operate'.
	Stakeholder engagement.	• Primary stakeholders (especially local poor communities) fully engaged in design process.	• Increased likelihood of community needs being met. • Reduced risk of adverse impacts on communities.	• Reduced risk (regulatory, reputation, social). • Greater user/customer acceptance.
Key Support Functions				
Procurement	• Supply of materials, goods and services.	• Local supply of materials, goods and services.	• Additional income to local economy. • Small suppliers and subcontractors tend use more labour-intensive methods project increasing employment generation.	• Access to suitable suppliers. • Most efficient and effective supply chain. • Advantages over competitors. • Supporting 'social license to operate'.
	• Subcontracting.	• Use of local subcontractors.		
Finance Management	• Financial transactions.	• Increased use of local financial institutions for project fund transfers, disbursements etc.	• Assists in building the capacity of local financial institutions.	• Reliable local financial services provider.
Human Resource Management	• Recruitment polices.	• Preferential recruitment of local workers.	• Additional income and skills for local people. • Builds local skill base. • Increased incomes for trainees.	• Access to skilled local workforce. • Advantages over competitors. • Supporting "social license to operate".
	• Training.	• Formal and on-the-job training programmes.		
	• Health & safety management programmes.	• Systems to prevent accidents and injuries in both the directly-employed and subcontractor workforce.	• Reduced accident and injuries (and consequent risk of lost income and livelihoods for workers and their families).	• Reduced risk (regulatory, reputation, social).

Table 2 – Shared Value Opportunities in the Competitive Context

Typical Elements of the Competitive Context (Porter 1990)		Example Shared Value Opportunities	Societal Benefits	Business Benefits
Factor (Input) Conditions Presence of quality specialized inputs available to firms.	• Availability of capable local labour.	• Support local vocational training initiatives.	• Builds skill base of the local economy. • Increased incomes for trainees.	• Access to skilled local workforce.
	• Efficient physical infrastructure.	• Align project or temporary (e.g. site access roads) infrastructure with local economic and social development priorities.	• Provision of essential services. • Additional economic growth.	• Enhanced relationship with government and regulatory bodies.
	• Administrative capacity of local government.	• Provide technical assistance to third-party programmes (e.g. bilateral and multilateral aid organisations) working to develop local government administrative capacity.	• More effective governance. • Contribution to "technological learning".	• Enhanced relationship with government, regulatory bodies and third-party organisations.
Context for Firm Strategy & Rivalry The rules and incentives that govern competition.	• Transparency in procurement for engineering services.	• Support for local industry-led or multi-stakeholder anti-corruption initiatives.	• Corruption disproportionately affects the poor, potentially increasing the cost of services and siphons off resources that should be spent on communities (DFID 2006).	• Increased likelihood fn non-corrupt businesses winning contracts.
	• Government and institutional capacity to identify, procure and manage infrastructure projects.	• Provide technical assistance to third-party programmes to develop local government management and technical expertise.	• More effective governance. • Increased chance of successful delivery of infrastructure projects. • Contribution to "technological learning".	• Enhanced relationship with government, regulatory bodies and third-party organisations.
Local Demand Conditions The nature and sophistication of local customer needs.	• Suitability of infrastructure for local needs.	• Design or pricing measures that provide access to affordable services for all people. • Additional works to provide universal access to infrastructure services.	• Provision of essential services. • Additional economic growth.	• Greater user/customer acceptance. • Reduced risk (regulatory, reputation, social).
Related and Supporting Industries The local availability of supporting industries.	• Availability of local suppliers.	• Support local enterprise development initiatives.	• Additional income to local economy. • Small suppliers and subcontractors tend use more labour-intensive methods project increasing employment impacts.	• Access to suitable suppliers. • Most efficient and effective supply chain. • Advantage over competitors.
	• Presence of industry clusters.	• Support the development of local complementary firms (e.g. survey, CAD/CAM, testing services).	• Additional income to local economy. • Technological learning.	• Access to suitable suppliers. • Most efficient and effective supply chain. • Advantage over competitors.

Opportunity Selection

The second stage of the ESPF process is to select those shared value opportunities which are the most valuable, and ideally meet the normal selection criteria applied in the firm's commercial and strategic decision making. This will generally require a quantitative assessment of the costs and benefits. It is noted that many of the potential benefits may be difficult to quantify, requiring subjective judgements by the team conducting the ESPF analysis. Where the benefits are uncertain in terms of their likelihood or impact it may be appropriate to use an expected value approach, essentially considering the opportunities as "positive" project or business risks (Institution of Civil Engineers & Actuarial Profession 2005).

Transforming value chain activities may be attractive as alignment of activities with contract delivery can potentially make the additional cost and management effort minimal; however the scope may be limited by the specifications or constraints of the client. The assessment of contributions to the firm's competitive context will depend on the firm's strategic time horizon, as these types of initiatives by their nature tend to be longer term. One feature of the engineering and construction sector is the periods between projects or contracts where a firm's resources are not fully utilised. This spare capacity could for example be used 'strategically' to support capacity building or training initiatives, simultaneously building the skill base of staff and further developing local knowledge and commercial relationships.

While the case for pursuing individual opportunities may be compelling, there may be also a broader opportunity to establish a social performance dimension to the firm's value proposition i.e. the set of needs that a firm can deliver for its chosen customers that other cannot. As Porter and Kramer observe: "the number of industries and companies whose competitive advantage can involve social value propositions is growing" (2006: 91). Two examples of potential social value propositions for engineering firms operating in developing countries are explored below.

Superior local value chain

The difficulties of operating successfully in many developing economies particularly for many firms are exacerbated by access to an appropriately skilled workforce and quality suppliers. Building the skill base of local workers and suppliers and establishing productive linkages with these groups can be facilitated by both project-related value chain initiatives or through competitive context contributions. Over time these linkages can create competitive advantage through both cost and efficiency gains, and advantageous positioning to deliver 'local content'. Many public and private sector clients specify various forms of local content requirement on the delivery of engineering projects and services (Hawkins et al. 2006). Oil and gas operators often need to meet challenging local content requirements as part of their agreements with governments and include these requirements in their tendering processes. This provides opportunities for engineering service providers in this industry to differentiate themselves from their competitors based on the strength and capacity of their local value chain.

Integrated social risk management

Projects in developing countries often encounter higher levels of 'social' risk, which arises through the interactions between a project and its local stakeholders. This elevated risk exposure is due to a range of factors including weak local governance, regulatory planning processes which may not fully take into account the views of local stakeholders, and the possible presence of

latent or open conflict in the project vicinity. For the engineering industry, this situation is complicated by the increased risk aversion of many clients leading to the adoption of project models and contracting arrangements which transfer more risk to the contractor (Skeggs 2004).

It is increasingly acknowledged that to adequately address social risk, projects need to obtain a 'social license to operate' i.e. the informed consent and support of local stakeholders to construct and operate a project in their area. The well-documented potential risks of not seeking and developing this local support (e.g. protests, site blockades, attacks on property and staff, damage to reputation, reduced operational revenues through lack of user acceptance) can have significant negative financial implications for clients and financiers as well as their engineering consultants and contractors. Maximising positive local benefits from projects is considered a key component of building a social license to operate. For many projects, aspects within the sphere of influence of engineering consultants and contractors are central to providing the benefits that many communities most value, such as designing for and delivering employment and local business opportunities. When benefits are aligned and delivered as part of the project they can potential constitute a cost-effective strategy for building better relationships with communities and managing risk. Engineering firms with specialist competencies in identifying, analysing and managing social risks can not only reduce their own risk exposures but can offer this as part of an integrated risk management service to clients (EAP & ODI 2004a).

Implementation

The final stage of the ESPF analysis is to ensure that there are appropriate internal mechanisms for the implementation, management and monitoring of the selected shared value opportunities. In the initial instance this may require modification or addition to core business and project management systems. An example could be a scenario where a firm identifies an opportunity to build a business development strategy based on its capabilities in developing subcontractors within its supply chain. It may be appropriate to make modifications to internal report structures to automatically capture quantitative data about the development of subcontractors (e.g. value of business on contracts, increase in total value of local contractors' business over time). This quantitative data can then be used to strengthen subsequent tender submissions, as well as enhancing the quality of a firm's CSR reporting. This type of integration will reduce or eliminate the additional management time required for administration. When value chain practices and contributions in competitive context are fully integrated, they may be difficult to distinguish from the day-to-day business of the firm (Porter & Kramer 2006).

It is important to note that engineering firms will not necessarily have 'in house' the full range of skills and resources to implement some of shared value opportunities arising from their operations. Multi-sector partnership models, such as that developed by the World Bank's Business Partners for Development Programme (www.bpdweb.com) may provide a suitable mechanism for that enables firms to work with 'non-traditional' partners and to tap into their competencies to meet business and development challenges in a way that adds value for each partner (Matthews 2005). Many governments and development agencies as well as NGOs are seeking opportunities to work with private sector firms as the importance of the private sector in poverty alleviation is increasingly recognized. Such partnerships can also ensure positive benefits are more sustainable and extend beyond the life of an individual contract. A useful starting point for the engineering and construction industry is the substantial body of knowledge developed within the industry in 'internal' project partnering i.e. relatively complex partnership arrangements between clients, contractors and subcontractors as a strategy for project delivery

(Verschoyle & Warner 2001). Many of the key competencies for the developing and managing these relationships could be applicable in an external context.

TIMOR LESTE CASE STUDY

This case study presents an analysis of the operations of a large engineering joint venture offering operations and maintenance services to the oil and gas industry in Timor Leste. The information was initially presented in a report published by EAP and ODI (2007). It demonstrates an engineering firm developing a strong social performance dimension to their value proposition and winning business based on this value proposition. It shows how even specialised engineering services can generate shared value opportunities in supporting activities and contributions to the competitive context. It also provides an overview of the use of the ESPF tool in systematically identifying and analysing shared value opportunities.

The Clough AMEC Joint Venture (CAJV) is a partnership between two major engineering firms: AMEC plc and Clough Limited. In 2004, the CAJV bid for the first operations and maintenance services contract for the offshore assets of ConocoPhillips' Bayu Undan Project, the first major oil and gas development in the Timor Sea. The contract requires provision of both off-shore and on-shore maintenance services ranging from minor fabrication work to major off-shore shut downs. The contract period is three years with the option of a two year extension and with an approximate value of US$40M over the first three years.

The core value proposition of the CAJV is to provide proven high-quality engineering and maintenance services at a competitive price through efficient utilisation of a unique global network of suppliers, subcontractors and skilled labour resources. Building on experience on the Shell Malampaya Project in the Philippines (EAP & ODI 2004b), the CAJV also added a social performance dimension to their value proposition i.e. integrating innovative strategies into contract delivery to help overcome barriers to Timor Leste participation in the oil and gas sector. This social value proposition was informed by the following key strategic and commercial drivers:

- The Timor Leste Government is seeking to maximise the local employment and commercial content through both the oil companies and their major contractors, and these aspirations are included in the Production Sharing Agreements with the oil companies. However, the lack of local capacity and the presence of established oil and gas support bases in Perth and Darwin in Australia represent strong inhibitors for the growth of a domestic support industry in Timor Leste.
- ConocoPhillips is seeking to satisfy the aspirations of the Timor Leste Government (within the commercial, technical and safety requirements of the project), in order to maximize their opportunities to secure additional exploration and production acreage.

As part of their bid offer, the CAJV included two innovative local content proposals aligned with the delivery of the technical requirements of the contract: a national employee resourcing strategy and the development of a common user support base (CUSB) in Timor-Leste. The resourcing strategy was a rigorous, staged process of building the necessary competencies of successive groups of Timorese trainees to allow them to safely perform skilled trade work on the off-shore facilities. The CUSB proposal entailed the construction and operation of a facility to attract suppliers and subcontractors to base themselves in Timor Leste to provide a range of key support services including fabrication and machining, warehouse storage, lifting and freight services. It

was proposed that the CUSB would be developed using a multi-sector partnership model between the private sector, the government and local development agencies, aiming to establish a sustainable long-term business with potential for growth beyond the current needs of the Bayu-Undan project and facilitating significant local skills and technology transfer. The CUSB proposal was accompanied by a detailed business plan.

The CAJV's social value proposition appears to have been highly successful in generating competitive advantage. According to statements made by the local regulatory authority and the client, these innovative proposals were material factors in the CAJV securing the contract. This is an important outcome as it provides direct evidence of the potential strategic and commercial value for engineering firms in establishing a social value proposition, particularly where this is aligned with the strategic priorities of the client.

At the mid-point of the Bayu-Undan contract period, an EAP/ODI research team visited Timor Leste at the invitation of the CAJV. This visit was to facilitate the use of the ESPF method to scan for further opportunities to support local economic and social development. An earlier version of the ESPF was utilised in this exercise which has some industry specific elements (e.g. an industry specific opportunity list); however the fundamental method is very similar to the version presented in this paper. Working with CAJV project staff, two additional shared value opportunities were identified to make strategic contributions to the local competitive context:

- Expansion of the national employee resourcing strategy to support the phased development of a local skills training capacity rather than relying on foreign training organisations.
- Support for the establishment of a dedicated enterprise development program for local businesses to support the development of their capacity to contribute to the oil & gas industry.

These initiatives would use the leverage created by the CAJV being the only major engineering services firm with operations in Timor Leste to further consolidate their local competitive position. While the viability of these initiatives needs to be further assessed, the long term strategic focus of the CAJV and the relatively long contract period makes these contributions strategically attractive. In addition, the scanning of the local context identified numerous organisations with potential to provide the resources necessary to support the identified opportunities. Key potential partners include the World Bank, Asian Development Bank, USAID, the German financial development organization GMZ, CARE Timor Leste and the Dili Institute of Technology. Initial discussions with these organisations indicated a strong willingness to consider partnership or collaboration initiatives. The CAJV was advised to consider positioning itself within a training or enterprise development collaboration as the provider of intermittent specialist and technical support, rather assuming the overall management responsibility and associated risks.

The ESPF was found to be a useful tool for identifying additional measures for the CAJV to contribute to Timor Leste's development while advancing their own business strategy and competitive positioning. These additional contributions could be invaluable for increasing the capacity of the local economy to benefit from the oil and gas sector and would complement the establishment of the CUSB facility. In a broader sense, the Bayu Undan contract and the activities of the CAJV presents one of the single most important opportunities in Timor Leste for the 'technological learning' process needed to increase the technical and managerial capacities within the local economy.

CONCLUSION

The ESPF is a systematic method for helping engineering firms to identify shared value initiatives that advance their business strategy and contribute to local social and economic development when operating in developing countries. It draws on a model for strategic CSR developed by Porter and Kramer as well as previous field research into the local social and economic development opportunities associated with engineering activities. The ESPF has been found to be a valuable tool for helping a firm refine its social value proposition and integrate it into its core business activities, as demonstrated by its application by an engineering joint venture in the oil and gas industry in Timor Leste. The method will now be further tested to increase confidence in its general applicability.

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