

# Measuring returns on community investments in mining

**Veronica Nyhan Jones**

*IFC, United States*

**Jelena Lukic\***

*IFC, United States*

**Arjun Bhalla**

*IFC, United States*

**Dafna Tapiero**

*IFC, United States*

## ABSTRACT

To manage environmental and socially induced operational risks and gain a social licence to operate, extractive industry companies invest in different community programs such as skills training, health or agricultural assistance. A lack of hard financial data for community investments has made it difficult to assess their business benefits and hence justify budgets that compete with other corporate priorities. The inability to articulate the costs and benefits has traditionally left community initiatives outside the core project planning process impeding cross-functional alignment, communications and strategy design.

The Financial Valuation Tool for Sustainability Investments (FV Tool) articulates reasonable net present value ranges on the return from community investments and calculates the financial value of risks mitigated through such activities. This value can take the form of either value protection (i.e. value of avoiding risks) or value creation (i.e. cash savings/productivity gains). The tool is grounded in the assumption that a company's local development investments can improve relationships between a company and community, which should reduce the likelihood of risks and as a result bring value back to the company. Companies can use the information provided by the FV Tool to strategically allocate financial and human resources to those programs with maximum positive impact for both local communities and the business operation.

The paper presents findings from field testing the FV Tool at Newmont's gold mine in Ghana and Rio Tinto's greenfield project in Sub-Saharan Africa. The lessons learned from these projects indicate that the FV Tool answers critical business questions:

- a) What is the optimal portfolio of community investments for a given operation?
- b) How large a financial return back to the company can be expected from such a portfolio?
- c) What are value drivers of each community investment?

## INTRODUCTION

Extractive industry companies often operate in emerging and frontier economies where local communities come face to face with foreign companies, sometimes without the presence of a strong central/local government, or governance structure. In order to be a good neighbour, manage high expectations of governments and host communities, access land and manage risks, many extractive industry companies invest millions of dollars in local communities to support sustainability – environmental, social, governance and economic - programs that develop infrastructure, provide vocational training and support a variety of local institutions and stakeholder groups. These investments create both benefits to the local communities as well as significant business value to companies. The long-time challenge is qualifying and quantifying the term value with sound metrics rooted in business language, e.g. financial value such as return on investment and rate of return that can capture all aspects of the sustainable effort both “soft” and “hard”. Value derived from sustainability programs has never been rigorously quantified, thus preventing managers from: a) maximizing the positive local impact of such investments; b) understanding the true business benefits of such investments to financially justify the spending of capital, c) being able to prioritize among those investments, d) communicating the value of these investments, and e) comparing these investments to other investments the company can make.

A lack of hard financial data on the return from social, environmental and economic investments has made it difficult for companies to assess their business benefits and hence to justify sustainability budgets that compete with other corporate priorities. The ability to articulate only the costs, and not the financial benefits, has biased the assessment of such investments as pure outlay with little direct business value. This traditionally leaves sustainability initiatives outside the core operation planning process, impeding cross-functional alignment, setting shared operational goals and communicating the holistic value of such initiatives. Excluding sustainability issues and spending from financial modelling may contribute to why so many projects are over budget and over time. Sound metrics can strengthen the business case for community investment, enhance local development outcomes through improved rigor of investments, help secure ongoing support from management and shareholders, and convey signals to the investors and insurers about good environmental and social risk management.

This case study presents the methodology and lessons of experience from applying the FV Tool at Rio Tinto’s greenfield investment in Sub-Saharan Africa and Newmont’s Ahafo gold mine in Ghana. This study suggests that companies can develop metrics to guide their community investments and translate local development outcomes into company value, in terms that are understood by the market – risk reduction, productivity gains, savings, return on investment, and enhanced reputation. An additional incentive is that high-performing environmental and social programs are increasingly seen as a proxy for effective business management. According to Multilateral Investment Guarantee Agency (MIGA), the World Bank political risk insurer, they would reduce insurance premiums for an operation that demonstrates rigorous risk management.

The field of measuring return on corporate social responsibility (CSR) initiatives is growing. There is a growing demand from investors, shareholders and corporate management to determine the value of CSR initiatives. Measuring return on these types of investments requires a

multidisciplinary approach bringing experience from financial valuation, political risk and environmental and social impact assessment.<sup>1</sup>

What makes the FV Tool method unique is the process which brings together a cross-functional team to assess how community investments yield a reduction in costly risk events in other business areas, such as land access and community health & safety. The model, supported by the operation's existing cash flow forecasts and assumptions, uses Monte Carlo simulation (probability) to refine user inputs, given the inherent uncertainty of predicting future events. The final output of the FV Tool - financial return expressed as the net present value (NPV) over the lifespan of the asset/operation - communicates the corporate value of social responsibility in the language of the financial world.

## **PLANNING AND FINANCIAL VALUATION TOOL FOR SUSTAINABILITY INVESTMENTS – KEY CONCEPTS AND COMPONENTS**

Over the past three years, a partnership, including the International Finance Corporation's Oil, Gas and Mining Sustainable Community Development Fund (IFC CommDev), Rio Tinto, Deloitte and the Multilateral Investment Guarantee Agency (MIGA), with the support from the Government of Norway, has developed the Financial Valuation Tool for Sustainability Investments in the extractives industry (FV tool). This tool calculates a probable range for the net present value (NPV) return to the company from a portfolio of sustainability investments, including value protected through risks mitigated and value created through productivity gains or cash savings. The FV Tool is grounded in the assumption that a company's site-level sustainability investments<sup>2</sup> can improve relationships between a company and community, which should reduce the likelihood of risks materializing, and/or improve productivity, and as a result provides value to the company that can also be expressed in financial terms. The desktop tool is designed to supplement a company's traditional discounted cash flow valuation model. The tool compares different sustainability investment scenarios based on risks and opportunities faced by an asset/operation, such as a mine or pipeline, to help managers decide which scenario is likely to yield the most value for the company via creating a positive impact for surrounding communities.

The tool estimates the difference between the financial values of two user-defined scenarios (investment portfolios) based on what comparisons the company wants to understand. For example: Scenario A, which may be defined as the "base case" – perhaps basic compliance with national regulation or project financier standards (ex. IFC's Performance Standards); and Scenario B, which may be defined as the "base case plus additional sustainability programs". Community investments in the Scenario B portfolio may go above and beyond the minimum regulation requirements. By comparing the financial values of two different investment portfolios (Scenario A

---

<sup>1</sup> The New Economic Foundation (NEF), a UK based think tank, views social and environmental, as well as economic costs and benefits, as important components of its analytical tool to measure value. The World Business Council for Sustainable Development (WBCSD) launched a Measuring Impact Framework in 2008, and the Shell Foundation and Foundation Strategy Group (FSG) produced a report in 2006 entitled "Investing for Impact: Managing and Measuring Proactive Social Investments."

<sup>2</sup> Sustainability investment any kind of voluntary spending by companies – e.g. basic infrastructure development, improved access to health and education services, job creation, microfinance, livelihoods development, skills transfer - that aims to improve the relationships with local stakeholders.

and Scenario B), the tool helps determine what the value of making additional sustainability investments is, i.e. going above and beyond what a business is externally required to do.

The methodology underpinning the FV Tool includes several components.



**Figure 1** Components of the FV Tool

**Stakeholder Analysis:** Stakeholder analysis and engagement are central to understanding site-level risks and opportunities to positively impact communities when deciding on an optimal portfolio of community investment. It draws on the company’s existing analysis of project stakeholders, risks, and opportunities. The analysis helps a company prioritize stakeholder groups for engagement and public consultation on project impacts.

**Traditional Investment Analysis (NPV):** In the FV Tool model, financial values of two investment portfolios are compared – Scenario A (base case) and Scenario B (base case plus additional community investments). Cost and benefit analyses are conducted for each sustainability investment.

As mentioned earlier, the FV Tool articulates reasonable NPV ranges on the return on future or actual sustainability investments. This value can take the form of either *indirect value protection* or *direct value creation*. These are two sides of the same coin.

**Indirect Value Protection** is the value saved by mitigating risks through community investments. It is defined as the value of avoiding risks such as costly delays in planning, construction, operations, lawsuits or other unforeseen added costs, project cancellation or appropriation. The analysis of value protection includes costing out the potential savings by reducing the frequency and intensity of above mentioned negative events. Unlike value creation, value protection is not readily calculated. It requires working through a scenario of risks and opportunities to calculate a value of the investments that contribute to social risk mitigation and increased trust, social cohesion, reputation, and good will, among other things. This process is what makes this tool unique among other complementary tools available in the market.

**Direct Value Creation** is direct cost-benefit calculation of community investments, i.e. positive cash flow. It can be value from input savings or productivity gains, for example, local workforce

training enabling the substitution of expensive expatriates with local hires; an anti-malaria program that keeps the workforce (reducing absenteeism) and the community healthier.

**Risk Quantification** - the total portion of risk that can be managed through community investments using MIGA country level data and industry data at the project level. The FV Tool subtracts the macro-level risks as assessed by MIGA and prompts the user to consider industry specific risks, using sector level data from historical database, to determine the potential volume of risk that a given sustainability investment portfolio can manage. The FV Tool simulates the cash flow impact of project level risks using plausible ranges of cost, duration, frequency, magnitude and potential outcomes.

**Quality of Sustainability Investment** allows the rating of the quality (i.e. effectiveness) of each sustainability investment. The Sustainability Program Quality Framework helps assess the effectiveness of community investments. It consists of Self-Assessment questionnaire and accompanying Benchmark Matrix, which offers description of ineffective to best practices around various community investment programs. The quality rating (a numerical score) of each sustainability investments then becomes a critical input to calculate the total value protection estimates.

**Monte Carlo Simulation** refers to a class of computational algorithms that rely on repeated random sampling to compute their results. Monte Carlo methods are useful for modelling phenomena with significant uncertainty in inputs, such as the calculation of risk in business. Based on the “value creation” and “value protection” analyses, a Monte Carlo simulation is run to factor in randomness (not knowing if or when such costly ‘risk’ events might occur) around many inputs and changing risks conditions in the Tool.

**Net Value to Company from Sustainability Investments** - the FV tool provides a net present value (NPV) range for both the direct and indirect value of sustainability investments, broken down by the contributions of specific community/sustainability investments, thus allowing for prioritization across investment possibilities as well as providing guidance on the optimal timing of investments.

As stressed earlier, the concept of value in the FV Tool takes the form of value protection and value creation. Each sustainability investment can have both potentials. The process of value drivers analysis helps determine costs and benefits (value creation) and value of avoiding costly risks. The FV model uses six common risks identified through significant desktop and interview research: 1) delays in the planning phase (pre-feasibility, feasibility), 2) delays in the construction phase, 3) disruptions in the production phase (operations), 4) project cancellation/expropriation, 5) added/unforeseen costs (ex. public relations campaign to address negative image portrayed of company in the media) and 6) lawsuits. A company creates a risk profile for each operational site by analysing the likelihood of each of these six risks to occur on the selected site. Then, for each of selected risks, the company estimates frequency (annual rate of occurrence), duration (months), one-time costs and lost revenues.

For example, community health program have both value protection and value creation potential. Among others, value creation drivers would be lower absenteeism and higher productivity due to healthier workforce. Health services provided to workers’ families would contribute to reducing school absenteeism of children and hence in the long run, improve the human capital of the region. All these benefits can be costed out based on the user’s assumptions. On the other side, to determine value protection drivers, one needs to analyse frequency, duration and costs of typical community risks on a specific operational site. For example, industry data shows that an average

duration of community protests at the gate is ten days and experience showed that at the specific company site they occur less frequently and take five days. Taking into account additional social capital analysis, it may be that company community health program contributed to better corporate-community relations, and consequently avoided risk of disruptions of the construction and operations.

The process involved to use the FV Tool provides a common platform and language (financial value) for many business units, such as finance, risk, operations, procurement and human resources, to holistically assess the returns from investing in sustainability. The process encourages the communication and coordination between business functions that traditionally do not work in alignment to mitigate risks. For example, the process starts with linking stakeholder analysis to identified risks for the specific asset/project, followed by identification of opportunities for the company to address those risks through local investments. This exercise usually brings together community relations and risk management business units. The next step – costing and determining the probability of identified risks – involves finance, and maybe operations and human resources in the process. Finally, the FV Tool platform integrates community perception surveys, conducted by the company, to determine the quality and effectiveness of programs being implemented, thus ensuring that financial calculations take into consideration local community perceived benefits as well.

## **LESSONS LEARNED FROM RIO TINTO AND NEWMONT**

The early development and application of the FV Tool was co-sponsored by Rio Tinto, one of the world's largest mining companies, which designed the tool to plan its sustainability portfolio for a greenfield investment in Sub-Saharan Africa. Building on that experience, IFC and Deloitte partnered with Newmont Mining Corporation (Newmont), one of the largest gold producers in the world, and Cairn Energy India, an oil and gas company, to field test, refine and demonstrate a proof of concept for the FV Tool in diverse contexts.

Newmont and Rio Tinto are mining companies that invest in emerging and frontier markets in accordance with the 'doing well by doing good' philosophy. This case study will focus on lessons learned from implementing the FV Tool with these two mining companies. Both companies used the FV Tool (both the software and the process) to evaluate the financial value-add of their community investments. This process revealed new perspectives to evaluate the drivers for value creation and value protection of social and sustainability program spending.<sup>3</sup>

Rio Tinto's human capital analysis indicated that local capacities in terms of mining expertise and skills were very low. The company wanted to assess the costs and benefits of setting up training programs early to elevate skills levels and build a pool of local labour to run its operations in the near future. The FV Tool calculations showed that investing very early in local workforce development would bring high benefits in the later phases of life of the asset particularly since the specific asset was in a very remote area where local jobs were limited and the company might be dependent on expensive expatriate workers.

Newmont piloted the FV Tool at Ahafo gold mine in Ghana (Newmont Ghana Gold Limited). The company realized its community relations team had contributed to substantial savings, calculated

---

<sup>3</sup> Quantitative data and NPV outputs are not included in this paper to maintain the confidentiality of company data.

using the FV Tool, through its Land Access and Acquisition program improvements. In an effort to expand their operations, they streamlined their approach to land negotiations and conducted a more inclusive stakeholder engagement process. Newmont also dedicated stakeholder engagement/community specialists to the project engineering team negotiating land access and compensation rates. All this led to lower expenses for land compensation. Due to the involvement of the community relations team Newmont was able to build trust with communities by being perceived as a fair land and compensation negotiator. As a result, Newmont saved time and money in its second neighbouring catchment negotiations, thereby gaining access to the land earlier than planned for the project. These savings were quantified through the FV Tool pilot implementation. The financial benefits were not clearly understood and quantified prior to this exercise.<sup>4</sup> Newmont also realized that they were spending significantly less on security than other surrounding mines when the FV Tool process led them to conduct some simple benchmarking. This savings is partly attributed to the work of the Community Relations team.

Both cases identified hidden value drivers and predicted a financial return far greater than the cost of local investments. They also illustrate the value of applying the FV Tool. Data collection from various departments and creative thinking about value creation and value protection potential of a community investment revealed hidden value drivers.

The FV Tool encourages engagement and increased interaction between CSR and finance functions to discuss CSR in terms of concrete financial value to the company. Sustainability investments are evaluated using financial valuation methods that finance and management understands and which add to the rigor of the company's long-term community investment strategy. It provides CSR managers financial value metrics to speak the same language as other business units and helps justify social spending.

## CONCLUSION

Pilots with Rio Tinto, Newmont Mining Corporation and Cairn Energy India demonstrated the proof of concept of the FV Tool and now Oyu Tolgoi mine in Mongolia (operated by Rio Tinto) is applying the methodology. The tool was recently launched as a public good, and is accessible for downloading from <http://www.fvtool.com>

Based on the experience with FV Tool implementation and findings in Ahafo goldmine in Ghana, Newmont is actively considering how they can integrate the FV Tool approach and process into next year's budget and planning process. They are preparing additional internal capacity building to support the effort and are considering an application in another region to test whether the method might be used corporate-wide.

The output of the tool enables managers to critically approach the portfolio of sustainability investments and to prioritize those that will yield most value to the company and to communities.

---

<sup>4</sup> *"The Financial Valuation Tool can be used to assist non-finance functions to improve understanding of community investment connection to financial drivers. It may assist company in communicating in more concrete terms the business case for community investment."*

Walter Richards, Regional Controller Africa, Newmont Ghana

*"We now realize data points that we have but had not been capturing across the organization."* Kojo Bedu-Addo, External Affairs Manager, Newmont Ghana

The NPV output is not only driven by cost – benefit cash flow analysis, but also includes stakeholders' perceptions and risk mitigation potential of sustainability programs.

The FV Tool reinforces cross-functional alignment within a company and improves decision-making for sustainability investments at the asset/project level based on robust financial and risk analysis, stakeholder engagement and social development program design. This effective measurement tool should provide companies with an understanding of the impact their community investments are having in financial terms; whether this impact is viewed positively or negatively by local communities; and how this translates into tangible business value.

## **ACKNOWLEDGEMENTS**

Authors would like to thank the following people for providing valuable comments and support: Nick Cotts, Kojo Bedu-Addo and Walter Richards from Newmont Ghana Gold Limited.

## **REFERENCES**

- Kramer M. & Cooch S. (2006) *Investing for Impact: Managing and Measuring Proactive Social Investments*, Shell Foundation, FSG, viewed 10 March 2011, < <http://commdev.org/content/document/detail/1640/>>.
- New Economic Foundation (2008) *Measuring Value: A guide to Social Return on Investment*, London, UK, viewed 15 March 2011, <<http://commdev.org/content/document/detail/2196/>>.
- World Business Council for Sustainable Development (2008) *Measuring Impact Framework*, viewed 10 March 2011, <<http://www.wbcsd.org/templates/TemplateWBCSD5/layout.asp?type=p&MenuId=MTU3Mw>>.