



Wharton **ESG Initiative**
UNIVERSITY of PENNSYLVANIA

Calculating the Net Present Value of Sustainability Initiatives at Newmont's Ahafo Mine in Ghana(A)

Witold (Vit) Hennisz

*Vice Dean and Faculty Director, The Environmental, Social and Governance (ESG) Initiative
Deloitte & Touche Professor of Management
The Wharton School at the University of Pennsylvania*

Tim Gray

Contributing Writer

Calculating the Net Present Value of Sustainability Initiatives at Newmont's Ahafo Mine in Ghana(A)

Newmont's future depends on our ability to develop, operate, close, and reclaim mines in ways consistent with our commitment to sustainable development, protection of human health and the environment, and adding value to the communities in which we operate.

—Wayne W. Murdy,[former]chairman and CEO,Newmont Mining Corporation

At[the]end of[the]day,if you don't have figures,you don't have good analysis.

—Lester Among, senior business planning analyst, Newmont Ghana Gold Ltd., Ahafo, Ghana

Introduction

The regional vice president for Environment and Social Responsibility (ESR) at Newmont Ghana Gold Limited had reason to feel confident.¹ As a leader of the environment and social responsibility function at Newmont Ghana Gold Limited, he had overseen a string of successes. From 2006-2010, Newmont Mining Corporation (Newmont), the parent entity to Newmont Ghana Gold Limited, one of the world's largest gold mining companies, had remade its image in the communities where it operated from that of a reviled,perceived bully to a responsible citizen. The work of the ESR team and their corporate leader, senior vice president and chief sustainability officer, had propelled the company to be the first gold mining company in the Dow

Jones Sustainability World Index comprised of world leaders in sustainable economic, environmental, and social practices.

Newmont had not always enjoyed such accolades. In 2006 it had found itself, like many of its peers, mired in controversy at a number of its operations. In Peru, the company faced strikes and protests. In Uzbekistan, one of its mines was expropriated by the national government after a tax dispute. Newmont's Yanacocha mine in Peru had also been investigated by the Compliance Advisor/Ombudsman(CAO)as part of a conflict/dispute

¹Unless otherwise noted, information in this case was obtained from phone interviews by authors of top management at Newmont Mining Corporation and Newmont Gold Ghana Limited.

Professor Witold J. Henisz, The Wharton School, and Tim Gray prepared this case as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. Some of the values and numbers presented throughout the case are disguised or should be considered approximate and may not represent actual values or costs. Statements and opinions expressed in this case are those of the authors. They do not express the opinions of the Wharton School, University of Pennsylvania.

Some of the values and numbers (presented in this case study) are disguised or should be considered approximates. Statements and opinions, expressed in this case, are those of the authors. They do not represent the opinions of the Wharton School, the University of Pennsylvania, Abraaj Capital, or Karachi Electric.

resolution process. In 2009, their Ahafo mine had been pilloried with a Public Eye Award, bestowed annually by Greenpeace Switzerland and the Berne Declaration on companies that they believed committed “evil offenses” against their communities and the environment.² A Public Eye press release had chided Newmont for its “scandalous gold mining project in Eastern Ghana” at Ahafo. The head of the Ghanaian nonprofit that nominated the company accused it of undertaking “brutal forced relocations” of local people, destroying wildlife habitats, and poisoning land and rivers.³ Newmont clearly demonstrated the accusations were incorrect, posting a point-by-point rebuttal online with facts and details. But its answer had not received half of the attention of the allegations, as is generally the case.

In 2012, thanks to Newmont’s work and a company-wide commitment to sustainability and on-the-ground performance, the taint had dissipated. The torments had finally passed, and Ahafo seemed poised to become one of the company’s most important mines. Newmont had not only moved beyond controversy, but was also lauded as one of the sustainability leaders in its industry. This progress was all the more remarkable because Newmont was not alone in the industry in its efforts to improve sustainability practices. Thus, as his annual budgetary review approached, the regional vice president expected another supportive process without challenge. That, after all, would ensure that Newmont did not backslide from its hard-won gains.

When the meeting came to review his annual budget, it did not follow the script he had planned out. Instead of plaudits and a free pass, he got push back. At the meeting, Newmont’s leadership team asked him “whether we might be spending too much.” He responded with mock outrage: “What are you looking for — the amount of our budget that you could cut before

something bad happens?” Sarcasm aside, he could not believe that he was being asked to justify his budget in light of all of the recent successes and good news. But his boss would not budge. His answer was calm but firm: “Look, every other decision we make in this budget review process is based on the business case. But when it comes to sustainability, the argumental ways shifts to what is right or better. The answer can’t always be that we have to spend more. At some point that eats into profits we could return to shareholders, wages we could pay our employees, [and] investments we could make. Tell me why we are spending this much money. Until you can, your budget is fixed.”

The regional vice president left the meeting discouraged and pessimistic about his ability to defend his work in dollars-and-cents terms. He was sure that better community engagement had benefited Newmont. He saw this in the positive press the company received, its improved relations with leaders in the communities where it operated, and the morale of employees who worked at its mines. But he was not sure that he, or anyone else, could quantify those gains. While the costs of sustainability spending appeared on Newmont’s income statement, the benefits that they produced did not appear in the same quantitative terms. Positive press, political goodwill, employee morale, and corporate reputation were the sorts of intangible assets that accountants had long said they could not put precise values on.

²The Office of the Compliance Advisor/Ombudsman is the independent recourse mechanism for projects supported by the International Finance Corporation (IFC) and the Multilateral Investment Guarantee Agency (MIGA)—the private sector lending arms of the World Bank Group. The CAO helps address the concerns of communities who believe they are affected by IFC and MIGA projects with the aim of improving social and environmental outcomes on the ground. The Office of the Compliance Advisor/Ombudsman, “About the CAO” <http://www.cao-ombudsman.org/about> (accessed October 3, 2013).

³Berne Declaration, “Bernische Kraftwerke and Newmont Mining pilloried at Public Eye in Davos,” January 29, 2009 <http://www.evb.ch/en/p25015094.html>

Then, as he walked back to his office, he recalled a conversation he had with the Community Development (Comm Dev) team at the International Finance Corporation (IFC), a private sector lending arm of the World Bank Group. The Comm Dev team had said that they were developing a methodology to calculate the net present value (NPV) of sustainability initiatives. When they described the approach, he had been intrigued, but too busy and distracted to make it a priority. Also, the methodology was still somewhat nascent and under development. Besides, he believed then that the business case and benefits of sustainability were so obvious that they did not need to be quantified. Additionally, methods for quantifying the benefits were not readily available or tested. By 2010, he was receiving questionless support for his budget requests, and his bosses seemed committed to pushing the company to the frontier of sustainability practices.

Now, confidence shaken, he called the Comm Dev team. Soon, Newmont had signed on to have its new mine in Ahafo serve as the second pilot study of the deployment of the Financial Valuation Tool for Sustainability Investments (FV Tool) that the IFC was developing with Deloitte Touche Tohmatsu Limited (Deloitte), the international accounting and consulting firm; Rio Tinto; and the Multilateral Investment Guarantee Agency (MIGA).⁴

The new tool was intended to do net present value calculations for sustainability projects just like the ones done for any other sort of investment. It offered hope that he would be able to boil all of Newmont Ahafo's sustainability programs down to a set of numbers using financial metrics, and if the new method worked, he would be able to give his boss the kind of proof that he wanted.

Newmont Mining Corporation

When the IFC-Deloitte team arrived in Ahafo in the spring of 2010, Newmont was the world's second largest producer of gold. It had over 17,000 employees and 26,000 contractors at 10 active mining sites in a far-flung list of countries: Ghana, Peru, the U.S., Mexico, Indonesia, New Zealand, and Australia. It also had three new projects under development in Ghana, Peru, and Canada. About a third of Newmont's proven and probable reserves in 2011 originated in emerging markets.

Newmont had originated in 1916 as a holding company for extractive enterprises spanning oil and gas drilling and copper and gold mining. It had invested in South Africa in 1917 and then made post-World War II expansions in Peru, the Philippines, and Algeria. In the 1960s, it sold off many of its developing world operations and thus managed to sidestep the wave of expropriations and nationalizations that bedeviled its industry in the 1970s and 1980s. Toward the end of those tumultuous two decades, Newmont faced pressure to sell off its South African holdings — apartheid had made South Africa an outcast, and western companies that operated there were seen as supporting a rogue regime. Financial needs also contributed to the decision to pull out of South Africa; Newmont had accumulated a hefty US \$1.9 billion in debts in fending off several takeover attempts. When the company exited South Africa, it was left with a focus on the mature markets of North America and Australia.

In 2012, ore reserves on those two continents were showing signs of dwindling (see Exhibit 1). They had peaked at 26 percent of world output in 1990 and had been falling since.

⁴For information on the Financial Valuation Tool for Sustainability Investments, see <https://www.fvtool.com/index.php> (accessed October 3, 2013).

South Africa saw an even steeper drop. Its share of global output fell steadily from 71 percent in 1980 to 7.4 percent in 2010. If Newmont was to replace its reserves, its only promising option was opening new mines in emerging markets. Of the top 20 global producers of gold in 2010, 8 had produced no substantial output as recently as 1990. New countries such as Mali, Tanzania, Argentina, Mexico, Ghana, Uzbekistan, Indonesia, and Peru were rapidly becoming major gold producers.

Starting in 1992, Newmont's exploration efforts in the developing world had begun to yield substantial new reserves and production; first at its mines in Yanacocha, Peru and Muruntau, Uzbekistan and then through acquisitions in Ghana (see Exhibits 2 and 3). But diversification into the emerging markets posed challenges. Their work scarred landscapes, required caravans of trucks that covered remote villages with dust, and instigated disputes over land acquisition and the use of cyanide. As a result, gold mines often became targets of politicians and their cronies seeking bribes and aggrieved communities demanding concessions.

A decade-long rise in the price of gold both fueled these demands and gave Newmont and its competitors the wherewithal to meet legitimate demands without sacrificing returns for shareholders (see Exhibit 4). Even so, each mine and each country where Newmont operated posed unique challenges. The costs of production, on a per ounce basis, of the mines showed a substantial increase with above ground costs (i.e., those related to external stakeholders as opposed to mining operations) which increasingly influenced profitability (see Exhibits 4 and 5).

Uzbekistan

Newmont was among the first foreign investors in newly independent Uzbekistan in 1992. Its initial plan entailed the processing of 240 million tons of low-grade ore waste to generate 4.8 million ounces of gold over 17 years. In 1993, the Muruntau mine accounted for 17.4 percent of Newmont's proven and probable reserves, and, in 1996, the mine accounted for 11.1 percent of Newmont's production. Production peaked at just under 500,000 ounces per year in 2000 and then began to decline. Employment ranged from a peak of 1,366 during construction to 800, on average, during operations.

To build goodwill at Muruntau, Newmont contributed books and Internet access to local schools and helped build a public library. It also gave US \$500,000 to a national sports fund and endowed scholarships in the national business school. On the environmental side, it tried to mitigate the dust and wastewater created by its mine, but those efforts did not stem community complaints.

In 2006, a disagreement broke out between the company and the Uzbekistan government that culminated in the seizure of Newmont's assets. Theories surrounding the sudden escalation of the dispute included the chill in Uzbekistan-U.S. relations after Uzbekistan troops killed dozens of peaceful protestors in 2005 in the city of Andijian. At that time, the Uzbekistan government closed a U.S. airbase in the country and took to courting Russia and China who, unlike the U.S., had never called for an investigation of the massacre. Newmont was forced to write off the US\$101 million, in book value, of the Muruntau assets. It sued to recover the US\$450 million of lost profits and ended up settling for US\$80 million.⁵

⁵Thomson Reuters, "Gold miner Newmont resolves dispute with Uzbekistan," July 23, 2007 <http://www.reuters.com/article/2007/07/23/us-newmont-uzbekistan-idUSN2336630420070723> (accessed October 3, 2013).

Peru

Exploration at the Yanacocha mine had taken some time due to the initial unfavorability of political conditions as well as terrorism risks from the Shining Path guerrillas that exceeded acceptable limits. However, once these issues were resolved, the exploration made substantive progress between 1988 and 1989 and development of the mine proceeded very quickly. Operations at Yanacocha began in 1993. That mine contributed to almost 30 percent of the company's proven and probable reserves from 1999 and 2001 and to more than 41 percent of production in 2005. Then it got tangled up in a bribery scandal involving the then-head of Peru's intelligence service, Vladimir Montesinos, and the then-president, Alberto Fujimori. Montesinos and Fujimori were accused of improperly intervening in an ownership dispute between Yanacocha partners including Newmont, the Peruvian company Compania de Minas Buenaventura SA (Buenaventura), and a French partner Le Bureau de recherches géologiques et minières (BRGM). The Peruvian Supreme Court ruled in Newmont/Buenaventura/BRGM's favor in 2000.

As that controversy cleared, another erupted. A Newmont transportation contractor spill of 150 kilograms of mercury poisoned as many as 1,000 villagers, including about 400 children. Highly toxic mercury was generated as a byproduct of the gold production process, which uses cyanide to separate gold from waste rock. Newmont, working with the Peruvian government and, hoping to speed up mercury recovery efforts, offered to purchase the mercury from local people who had collected it thinking it had value and hidden it in their homes. That worsened the problems, as collectors hoarded the liquid mercury in the hopes of securing a better price. Some villagers also believed, as local folklore taught, that quicksilver would metamorphose into gold. In reality, the storage of mercury in open containers contributed to an increased exposure to toxic fumes.

Conflict also sparked over the expansion of the mine into the Cerro Quilish area. The site, considered sacred by some groups, served as a portion of the water supply for the town of Cajamarca. Newmont had secured the necessary regulatory approvals to proceed with the exploration, but non-governmental organization (NGO) opposition led to an occupation of the area that lasted several days. More than 1,000 people joined, and 11 of them were injured in clashes with police. Roadblocks persisted sporadically for weeks. Local residents then called a general strike that shut down banks, supermarkets, and public transport. After a second strike, Newmont offered to stop exploration and remove the ounces of gold from the company's stated reserves as a show of good faith.

Newmont responded by redoubling its community outreach via the expansion of the Minera Yanacocha SME linkages program and the Asociacion Los Andes de Cajamarca (ALAC) foundation with technical assistance and financial support provided by the IFC.⁶ By the end of 2001, Newmont had invested US\$15 million in community development initiatives, and external donors had added another US \$7.3 million.

Linkages were created to promote livelihoods within the community, outside of mining. Local artisans received training in product design, production, and marketing. A similar program for small businesses led to the creation of 54 new jobs and US \$2 million in additional sales. Newmont also tried to remove red tape for fledgling firms. It worked with the Peruvian government to simplify company registration, reducing the time from 100 to 3 days. This let

⁶Beth Jenkins et al., International Finance Corporation, International Business Leaders Forum, and the Fellows of Harvard College, "Business Linkages: Lessons, Opportunities, and Challenges," 2007 http://www.hks.harvard.edu/m-rcbg/CSRI/publications/report_16_BUSINESS%20LINKAGESFINAL.pdf (accessed October 3, 2013).

workers move from the underground economy into formal businesses, which could more easily access money for expansion. In total, Newmont estimated that linkages assisted 250 businesses and contributed to US \$10 million in increased sales for these firms.

Newmont created the ALAC foundation in March 2004 with the goal of continuing to boost local development. It built upon linkages, placing more emphasis on business ownership and entrepreneurship. The US \$1.5 million funding pool offered grants to projects and assisted in recruiting Peruvian and other international partners to provide additional backing. ALAC- supported projects helped farmers to increase their crop and dairy yields and to breed guinea pigs. Other ALAC projects taught more than 11,500 students basic business and jewelry design skills and connected local businesses to regional and national supply chains. The ALAC also helped more than 5,000 families access money for home improvements.⁷ The program won numerous awards, including the Business Creativity Award from the Peruvian University of Applied Sciences.

Indonesia

Newmont's third major international expansion was in Indonesia where the Batu Hijau and Buyat Bay mines together peaked at nearly 19 percent of proven and probable reserves in 1997 and 13 percent of production in 2001. Assessments of the Batu Hijau area suggested that it could yield 15 million ounces of gold and 11 billion pounds of copper. Construction began in 1997 and production began in 2000. As a result of the mine, the nearby village swelled from 500 inhabitants to about 5,000.

In 1997, the Indonesian government delayed permitting, seeking a larger equity share for

national companies and more jobs for local workers. But Newmont resisted this pressure. Then, in 2002, local NGOs began publicizing the plight of a local woman who, they claimed, had been forced off of her land without compensation and whose family had lost its ability to farm and fish. An investigation revealed the claims were false; the woman had left the village six years before development began. The mine survived these challenges and became profitable, though local management faced continued pressure to shift equity ownership to the government or national companies.

In hopes of improving local relations, Newmont created the community foundation, Yayasan Olat Perigi, in 2007, which funded worker training, subsidized loans for local firms, and donated schools and furniture. It even gave out sacrificial buffaloes and goats for Islamic holidays. Still, some local people complained about the foundation's lack of transparency and its lack of coordination with local organizations.

Ore deposits at another Indonesian mine, Minahasa Raya on Buyat Bay, were far smaller than at Batu Hijau, at 2.1 million ounces. But conflict during the closure phase of the mine in December 2003 was fierce because locals did not want the mine to close. Newmont designed the Minahasa Raya mine to meet U.S. environmental standards. The company, for example, utilized underwater, instead of land, tailing disposal methods, where earthquakes or heavy rains could cause greater environmental damage. Still, two Indonesian NGOs, Wahana Lingkungan Hidup Indonesia (WALHI) and Jaringan Advokasi Tambang (Jatam), accused Newmont of polluting the bay with cyanide,

⁷Melissa Whellams, Saint Mary's University, "The Role of CSR in Development: A Case Study Involving the Mining Industry in South America," January 2007 <http://www.avanzar.biz/Publications/MWThesisFinal.pdf> (accessed October 3, 2013).

mercury, lead, arsenic, and other heavy metals. They also challenged the atmospheric release of 33 tons of mercury. In 2004, WALHI filmed a documentary highlighting health ailments in the area, and a *New York Times* front-page story blamed Newmont for illnesses, local poverty, and fish kills.⁸

Several Newmont executives were arrested and the Indonesian government sued. Independent investigations found the NGOs' claims to be baseless, and Newmont's personnel were acquitted. Nonetheless, the company agreed to a US\$30 million goodwill agreement to undertake a long-term, post-closure, monitoring program and to fund some local community programs. Throughout the life of the mine, the company supported the fishing industry through the construction of a new port and refrigerated storage. They also worked with local NGOs and science organizations to establish artificial reefs in areas that were being damaged due to local overfishing. In total, it was estimated that Newmont spent about US \$110 million in community development, post-closure monitoring, scientific investigations, legal fees, and other costs to manage the false accusations, which exceeded the operation's lifetime contribution to corporate earnings.⁹

Beyond the Mines

In the aftermath of the controversies in Uzbekistan, Peru, and Indonesia in April 2007, 92 percent of Newmont's shareholders supported a recommendation by the company's Board of Directors to review its policies and practices relating to engagement with local communities. The resolution expressed concern that "Newmont projects in developing countries have been undermined by community protests" and noted a "pattern of community resistance to the company's operations." Experts were brought in to

interview employees and external stakeholders and examine policies and practices. They concluded that Newmont could improve its ability to resolve conflicts, address grievances, and to review and update company-wide standards and programs to guide its sustainability campaigns. In March 2009, the review culminated with a report entitled *Community Relationships Review (CRR)*, compiled by the law firm *Foley Hoag LLP*, which specialized in international business. The CRR report was organized around the following eight lessons:

- Lesson 1: Every Newmont operating site must have a comprehensive and integrated strategic management plan for community relations that identifies the objectives and responsibilities of each functional department and takes into account relevant site-specific factors.
- Lesson 2: Regular and comprehensive social impact and risk assessments must inform cross-functional strategic planning at Newmont's operating sites.
- Lesson 3: Regional and local managers, in all functional areas, must be accountable for implementation of the company's strategic objectives regarding community relationship building.
- Lesson 4: Newmont's operating sites must assess stakeholder concerns and engage with external stakeholders in order to understand and effectively respond to their perceptions and concerns.

⁸Jane Perlez and Evelyn Rusli, "Spurred by Illness, Indonesians Lash Out at U.S. Mining Giant," *The New York Times*, September 8, 2004 <http://www.nytimes.com/2004/09/08/international/asia/08indo.html> (accessed October 3, 2013).

⁹Jack H. Morris, *Going for Gold: The History of Newmont Mining Corporation* (Alabama: University Alabama Press, 2010).

- Lesson 5: Newmont's engagements with the community must reflect the company's values and responsibilities and clearly convey what can be expected from the company in its role as a community stakeholder.
- Lesson 6: Newmont's operating sites must engage in conflict identification and manage community concerns before open conflict arises, while also respecting the rights of stakeholders to protest against the mine.
- Lesson 7: Newmont must ensure that its operating sites have accessible and responsive grievance mechanisms.

Lesson 8: Management of the environmental impact of mining on water and other natural resources is directly linked to the management of community relations; Newmont must assess and respond to stakeholder concerns regarding both real and perceived environmental impacts of its operations.

The CRR report concluded: "If Newmont is to continue to grow as a company, maintain its production pipeline, and succeed in current and future business operations around the world, it must manage its community relationships more effectively. Newmont must act quickly to ensure that stakeholder engagement and community relationship building are integral components of Newmont's business operations."¹⁰

The CRR report found that in the past sustainability managers at each Newmont mine had engagement plans, but the plans had varied in levels of sophistication. In theory, each manager worked with local colleagues in such departments as operations and finance to ensure that their plans were carried out. But there was little evidence that the engagement efforts were coordinated at the corporate level via a broader strategic plan. Integration of sustainability into financial and operational decision-making was

hampered because, according to an interview included in the report: "The social side is still seen as voodoo. Those in more traditional groups still don't get social responsibility." Despite existing internal evaluation systems, there was a significant lack of clarity among those interviewed regarding what social responsibility is and how it should be evaluated. Concern was expressed regarding regional managers who still did not understand the importance of social responsibility, even though these managers were often transferred from location to location and faced similar issues (e.g., indigenous rights) in their new postings.¹¹

In practice, sustainability managers were often isolated, with little influence within the company. They had no authority over workers and contractors with whom the community members interacted. This structure reinforced a perception among employees that the company was, at heart, more committed to ore production than to the creation of constructive ties with the communities in which it operated.

The CRR report also found that Newmont had not conducted the regular assessments needed to tailor its engagement plans to local circumstances. The company also lacked metrics to gauge the effectiveness of its engagement work. Given that combination, local sustainability managers and site operations teams could not be held accountable since the company could not say specifically what they should be doing, nor could it measure what they had achieved.

¹⁰Newmont Mining Corporation, "Community Relations Review," March 2009 http://www.beyondthemine.com/pdf/CRR_Global_Summary_FULL-EnglishFINAL.pdf (accessed October 3, 2013).

¹¹Ibid., p.66.

The insights gained from the CRR report were synthesized into a multi-year plan. Concrete changes included a restatement of the corporate values and mission in January 2009 and the release of an expanded sustainability report format (see Appendix 1). These documents and, more importantly, the organizational commitment that accompanied them, were widely recognized as industry standards (see Appendix 2). Four areas in particular were targeted for improvement: communications within Newmont; communications between the firm and stakeholders; stakeholder engagement; and the integration of community relations into the rest of the business. The final goal required the creation of performance metrics for sustainability and the evaluation of engagement activities against these metrics.

THE ECONOMIC, CULTURAL, POLITICAL, AND LEGAL CONTEXT

Newmont aimed to apply lessons from Uzbekistan, Peru, Indonesia, and Ghana. The company entered Ghana in 2002 as part of its acquisition of Normandy Mining Ltd. Ghana had risen from 0.9 percent to 3.2 percent of world production over the period between 1990 and 2010 and thus played an important role in Newmont's long-term plan to expand reserves (see Exhibit 1). In addition to the Ahafo mine, Newmont was developing one at Aykem, midway between Ahafo and Accra, Ghana's capital and largest city. That mine was initially expected to be under construction in 2005 and in operation by 2007. Company executives hoped that Ghana would be a springboard to the development of projects in other African countries including Guinea, Cote d'Ivoire, Burkina Faso, Mali, and the Democratic Republic of Congo.

Ghana was among the most politically stable countries in Africa. It had a history of peaceful,

democratic governance. It was the first sub-Saharan country to achieve independence from colonial rule. It began as a parliamentary democracy, though it soon saw a series of military and civilian autocratic governments. Democracy returned in 1992.¹²

Mining had a long history in the country, which, in colonial times, had been known as the Gold Coast. Laws and regulations governing mines were well established. The country was, however, still quite poor. According to the World Bank Group, 28.6 percent of Ghanaians lived on less than US\$1.25 a day in 2006. Per capita income had, however, grown from US\$1,067 in purchasing power parity (constant 2005 international dollars) to US\$1,475 over the past 10 years (see Exhibit 6 for additional macroeconomic data).¹³

The Ahafo mine was located in the Asutifi and Tano North Districts of the Brong Ahafo Region, lying along the Sefwi-Bibiani Gold Belt. The site was 300 kilometers northwest of Accra, and the closest major regional center was Sunyani, about 42 kilometers away (see Exhibit 7).¹⁴ Despite the prevalence of mining in Ghana — gold accounted for 20 percent of all tax revenues nationally and contributed 6.3 percent to gross domestic product (GDP—the area around Ahafo had little history of formal mining¹⁵). Thus, Newmont's operation could have been considered a greenfield project. The mining lease area stretched over 500 square kilometers, and the Ahafo South mine required the physical and economic relocation of an estimated 10,000

¹²"History of Ghana," *Wikipedia* http://en.wikipedia.org/wiki/History_of_Ghana (accessed October 3, 2013).

¹³The World Bank Group, "Ghana: World Development Indicators," 2013.

¹⁴Newmont Ghana Gold Ltd., "Environmental and Social Impact Assessment: Chapter 1," August 2005 http://www.newmont.com/sites/default/files/Chapter%201_Final_082405.pdf (accessed October 3, 2013).

¹⁵Ethan Kapstein, Rene Kim, and Newmont Ghana Gold Limited, "The Socio-Economic Impact of Newmont Ghana Gold Limited," pg 8, June 2011.

residents in 50 hamlets and villages. Mass resettlement and loss of access to land were the central local concern. The project was divided into south and north phases. The former had started operations in 2006, and the latter was still being explored in 2011.

The south phase consisted of 4 open pits which, after capital investments of US\$882 million, were expected to yield a total of 6.8 million ounces of gold over 15 years of operation at total cash costs of US \$200 per ounce. Besides the pits, the site contained areas for a processing plant, waste rock disposal, water and tailings storage, dams for controlling storm water and sediments, and supplementary facilities. The north phase was expected to contain as many as 7 additional mining areas and bring total output to 10 million ounces. Its development would have involved the resettlement, potentially, of another 10,000 people (see Exhibit 8).

In 2012, Newmont Ahafo employed 1,579 workers and 3,056 contractors at an average wage of US\$5 per hour, which substantially exceeded the approximately US \$0.60-per hour average wage in the country and the approximately US\$0.34 per hour minimum wage. One recent study had, in fact, highlighted that the average employee at Newmont's operations contributed 20 times the average value-added of an employee in the country as a whole.¹⁶ During construction, employment levels approached 5,000. In 2010, the company sourced US \$280 million of goods and services in Ghana. It contributed 20 percent of total tax collections, 10 percent of the nation's total exports, 4.5 percent of its foreign direct investment, and 1.3 percent of its GDP. Counting direct, indirect, and induced employment, it accounted for 48,000 jobs.

Agriculture was responsible for about 70 percent of the economic output of the mine's home region.¹⁷ Poverty levels in the immediate

areas of the Asutifi (60 percent) and Tano (48 percent) regions were high compared with the rest of Brong Ahafo (36 percent) and the country. Illiteracy was also high — about 50 percent in Asutifi and 67 percent in Tano. Maternal mortality in the region was 0.2 percent, among the highest in the country.¹⁸

Brong Ahafo was one of 10 regional government bodies within Ghana. A regional coordinating council connected various regional assemblies, agencies, and chiefs to the national government. Brong Ahafo contained 19 administrative districts — Ahafo South was in the Asutifi district. The highest local authority was the Asutifi District Assembly. Seventy percent of its members were elected, and the rest were appointed. The district assembly's chief executive, appointed by Ghana's president with two-thirds approval of the district assembly, was head of the district assembly and also of its executive committee.

Traditional tribal government endured in the region, particularly in land allocation and management. Ahafo lay within the Ashanti Kingdom, centered in Kumasi. Paramount chiefs, recognized by the Ashanti king, administered the autonomous chiefs within their stool or area. The paramount chiefs also controlled the community chiefs. Chiefdoms — comprised of the chief, queen mother, sub chiefs, family/clan heads, and a linguist — approved decisions regarding development, civil law, domestic disagreements, and traditional tribal law.

¹⁶Ethan Kapstein, Rene Kim, and Newmont Ghana Gold Limited, "The Socio-Economic Impact of Newmont Ghana Gold Limited," June 2011 http://www.newmont.com/sites/default/files/Socio_Economic_Impact_of_Newmont_Ghana_Gold_July_2011_0.pdf (accessed October 3, 2013).

¹⁷Ghana National Council of Metropolitan Chicago, "Brong-Ahafo Association," http://ghananationalcouncil1.org/brong_ahafo_association.htm

¹⁸World Business Council for Sustainable Development, "Newmont Supporting Local Economic Growth in Ghana," 2009 http://commdev.org/files/2528_file_NewmontIFC_casestudyFINAL.pdf

Per Ghanaian law, all mineral rights belonged to the central government, and local people were compensated only for the value of crops and structures removed when a mine was built and not for the value of the land. In reality, compensation decisions were knottier, involving the national government, chiefs, and the community. State land, mostly acquired in the Administration of Lands Act of 1962 (Act 123),¹⁹ was under the jurisdiction of the state. The boundaries of this land had been surveyed, mapped, and registered. Vested land was owned by a stool, under the custody of a chief, but managed by the state; the state had the right to sell or lease it and collect rent.

Customary ownership norms tended to trump laws and often led to tension between legislators and traditional authorities. Customary ownership was not documented but was based on social structures and traditional practices. A custodian and council of elders oversaw and allocated the land, which was often passed down from generation to generation — agreements technically lasted from one to five years. Land use rights depended upon agreements made between property owners and sharecroppers or caretakers. There were of ten disagreements among individuals, families, and neighboring stools regarding ownership rights, sale price, and use.

Another source of discord was the distribution of the mining royalties. Ten percent of the royalties paid to the national government flowed back to the locality. They were distributed among the district administration (5.5 percent), chiefs and elders (3 percent), and the administrators of stool lands (1.5 percent). Debates about distribution arose because of a lack of transparency. There was also a sense that politicians in district capitals, not people in the rural communities most affected by mining, captured too much of the gains. It was a widespread belief among Ghanaians that mining

companies manipulated the system to their advantage, currying favor with politicians, chiefs, and the police and mostly ignored the needs of rural villagers.

STAKEHOLDER ENGAGEMENT AND SUSTAINABILITY INITIATIVES

Stakeholder Engagement

Newmont sought to learn from the controversies in Peru, Indonesia, and Uzbekistan and implement a better community engagement plan at Ahafo. A field visit by CDA Collaborative Learning Projects (CDA), a nonprofit organization that specialized in stakeholder engagement, noted a wide array of transparency mechanisms, summarized in the excerpt from their report on the next page.

Still, Newmont Ahafo faced ample challenges. Local folk alleged, for example, that police had used excessive force in responding to a protest in 2005 and had wrongly arrested NGO representatives in 2006. The mine also had an accidental drowning in 2005 and an unintended waste discharge in 2006. Some villagers claimed that construction had contributed to a rise in malaria.²⁰ Other flash points were the allocation of jobs and alleged favoritism directed toward traditional chiefs and their allies.

¹⁹The Administration of Lands Act of 1962 (Act 123) gives the president power to acquire stool land that is held in trust (in the public interest) and vests the management of all stool land revenue in the central government. Ghana Environmental Protection Agency, "Administration of Lands Act of 1962 (Act 123)," <http://www.epa.gov.gh/ghanalex/acts/Acts/ADMINISTRATION%20OF%20LANDS%20ACT;1962.pdf> (accessed October 3, 2013).

²⁰Malaria is a serious and sometimes fatal disease caused by a parasite that commonly affects a certain type of mosquito which feeds on humans. People contracting malaria are typically very sick with high fevers, shaking chills, and flu-like illness. Centers for Disease Control and Prevention, "About Malaria," August 9, 2012, <http://www.cdc.gov/malaria> (accessed October 3, 2013).

Transparency Mechanisms

Newmont has an open door policy. People on site as well as in Accra follow a policy to be available to “anybody that wants to speak with us.”

- Bulletin boards in each village showing vacancies, announcements, and minutes of meetings
- The use of public meetings (“town crier meetings”), plays, or puppet shows to convey messages.
- Elected committee representation from all hamlets and villages in the MTA that meet with Newmont on an ongoing basis(RNC in Ahafo and the Crop Compensation Committee and the Consultative Community Committee in Akyem).
- Important meetings are video and audio taped and that are accessible to local communities upon request.
- Quarterly meetings with 1)traditional leaders 2) assemblymen 3)youth association chairmen and 4) chief farmers in Ahafo.
- Bi-weekly presentations to stakeholder groups such as youth,local political establishment, regional political establishment, and traditional authorities in Akyem.
- In Ahafo summaries of four public disclosure documents have been translated into a local language (Twi) and publicly available in several towns. Public Disclosure Officers are tasked to answer questions from the public and explain the following documents:
 - Resettlement Action Plan.
 - Environmental Social Impact Assessment
 - Public Consultation and Disclosure Plan.
 - Independent Assessment of Resettlement Implementation.

- Presentations at local high schools and invitations to high schools for field trips.
- Periodic presentations to the media (public disclosure documents, cyanide code).
- Basic training courses on negotiation provided by a university.
- The provision of courses for local opinion leaders and elders on leadership training, conflict resolution, and other topics by OICI.
- Akyemhas plans to open an information office.
- Organized visits of representatives to other mining sites.
- Observations that signal proximity in modest but important ways:
 - Name tags of employees show a first name in bold letters rather than have different labels that signal the type of contract or last name only.
 - Fencing around the compounds in Kenyase and New Abirem has no barbed wire and security perimeter, which reinforces a visible sense of proximity.
 - CR people say they give out business cards to local stakeholders with their details “so that I’m accessible.”

Source: CDA Collaborative Learning Projects, “Corporate Engagement Project: Ahafo Project–Brong Ahafo Region & Akyem Project – Eastern Region,” November 2005 <http://www.guidohome.com/Africa/files/GhanaCEPluczandvliet.pdf> (accessed October 3, 2013).

Resettlement

Newmont's first major challenge back in 2004 was the resettlement of people who lived on and/or worked the land now occupied by the mine site. The company had to not only compensate and resettle them, but also facilitate access to new land and the replacement of their livelihoods. Even though, under Ghanaian law, Newmont did not have to buy or provide compensation for land unless it was deeded.

Newmont initially worked with planning Alliance, a Canadian urban planning and design firm with expertise in providing social assessments and management services to natural resource companies in the area of resettlement. Together, they analyzed the number of people and amount of land affected. They identified 1,701 households, comprised of 9,575 people. These households owned 1,426 structures or sets of structures, 8 businesses, and cultivated 7,193 fields (2,426 hectares). Four schools, four sheds belonging to the Ghana Cocoa Board, two roads, and a system of tracks and paths also needed to be displaced.

In 2012, Newmont built two new villages — one outside of Kenyase Number 2, called Ola Resettlement Village, where 312 households, comprised of 2,028 people, moved, and another outside Ntotoroso, called Ntotoroso Resettlement Village, where 87 households, comprised of 566 people, moved. Both new villages saw rapid population growth on account of the new economic opportunities in the area. Local authorities soon became concerned over the strain on local resources.

Newmont's external affairs team worked daily to ensure communication between the company and the communities. A special committee assisted with discussions and negotiations regarding resettlement entitlements. It consisted of representatives from Newmont Ghana Gold Limited; the regional, district,

and traditional governments; NGOs; and the affected people. The committee helped to determine resettlement entitlements and also assisted with individual negotiations, thus earning the respect and trust of villagers. The resettlement committee was eventually replaced by a community liaison committee, which served as a link between one of Newmont's key agricultural programs and the new villages.

The resettlement committee agreed that people would receive compensation if they had a legitimate interest, not just ownership, in immovable assets, such as crops or buildings. In general, compensation consisted of a replacement residence and land plot, with the new home being equal in total area and kitchen size to the original. Residents could choose the color and location of their new homes, and a group of neighbors could move together so that they could retain the community from which they came. People could also opt for a lump sum of cash, instead of a new home, but only if they offered proof that they had an alternative residence outside of the mine area. About 424 households opted for relocation rather than resettlement. Public structures, such as the schools, were built in the resettlement villages. Overall, Newmont spent about US \$51 million on land access, including compensation, resettlement, livelihood restoration, and the management of vulnerable people.

In surveys, approximately 97 percent of the people affected by the mine said agriculture was central to their livelihood. Resettlement meant that farmers would lose land that they had cultivated and improved for years — even generations. It could have also driven up land prices in surrounding areas and curtailed agricultural production. As a result, Newmont developed and implemented the Agricultural Improvement and Land Access Program (AILAP) in July 2006 for approximately 3,000 people affected. It created a series of programs to

try and incentivize local farmers to re-establish new farms and help them boost production, diversify their crops, and enhance their access to markets. The objectives of the programs were to increase yields and assist farmers in diversifying their businesses by encouraging them to process some of their own crops.

Experiences with Ahafo South led to a shift in focus in subsequent land acquisitions, with greater emphasis placed on negotiation and the priorities of residents. Newmont developed two programs — one for livelihood enhancement and empowerment and another for vulnerable people — intended to help affected communities. These programs were designed with significant local input and with the help of development NGOs and government agencies. They led to a perception that Newmont was a good neighbor and a fair and honest negotiator. As a result, land acquisition for the first expansion area developed beyond Ahafo South in Amoma was completed with an average payment of US\$2.87 per square foot less than the average in Ahafo South and with US\$230,000 less in compensation for land and crops. More importantly, the process took 4 fewer months, allowing faster development of the mine which translated to a US\$700,000 improvement in the net present value of the mine.

Community Healthcare

Malaria imposes high costs on multinationals in sub-Saharan Africa. The World Health Organization estimates that 90 percent of the world's malaria deaths occur in Africa.²¹ A recent report found that absenteeism and medical care, linked to the disease, had added US \$2.7 million to the cost of the construction of the Mozal aluminum smelter in Mozambique and US\$4 million to the construction cost of the

Chad-Cameron oil pipeline by Exxon Mobile Corporation.²²

In Ghana, the average monthly incidence of malaria infection was 8 percent in 2006. The disease, which is spread by mosquito bites, caused 32.9 percent of all hospital admissions and 13.4 percent of all deaths in the country that year, leading both categories by substantial margins. In 2006, workers at Newmont Ahafo endured 3,195 cases of malaria, which led, on average, to 3 days of absence from work and US\$30 worth of treatment. The company believed that the disease also hurt worker morale and led to reluctance, by the highest quality and most productive potential workers, to relocate to Ahafo. Newmont also provided care for workers' family members at an expense equal to or larger than that for treating the workers themselves.

Faced with these costs, Newmont stepped up malaria prevention at its mine and in the villages, launching an US\$850,000, 2-year control program in 2007. It distributed bed nets, instructed people on their use, and supported community monitoring of bed net usage. It also sprayed insecticide and improved drainage to eliminate insect breeding pools. These measures reduced malaria incidence in the community to near zero. Newmont created a similar program to fight HIV/AIDS, the second leading cause of death in Ghana, at 7.4 percent. That campaign combined condom distribution with education, counseling, and monitoring, at an expense of US \$105,000 per year.²³

²¹World Health Organization, "Malaria," March 2013 <http://www.who.int/media/centre/fact-sheets/fs094/en> (accessed October 3, 2013).

²²Fuseini, Ebsworth, Knight, Caiger, Burns & Bangs, pp. 120-121, 176-177, 2012, <http://www.scribd.com/doc/168347202/Community-Development-Toolkit>

²³Newmont Mining Corporation, "Appendix A: Malaria and HIV/AIDS Policies," August 29, 2005, http://www.newmont.com/sites/default/files/all_appendix_082905_0.pdf (accessed October 3, 2013).

In September 2011, in collaboration with the Ghana Health Service and local medical services, Newmont improved healthcare in the country more generally by renovating the Kenyasi Health Center. They built residences for nurses and constructed three clinics in surrounding villages.²⁴ It also supplied 60 healthcare volunteers with provisions and bicycles and donated medical equipment to regional hospitals.

In 2010, GBC Health, a coalition of 200 corporate groups, governments, and U.N. agencies, such as the World Health Organization, voted Newmont Ghana's HIV/AIDS and malaria programs as the best in the workplace HIV/AIDS and malaria category.²⁵ Thanks to the success of the programs, the company was considering similar ones for diabetes, hypertension (the fifth leading cause of hospitalizations at 3.1 percent and the seventh leading cause of death at 4.1 percent), tuberculosis, and child wellness. It was also examining the broadening of community health monitoring and the training of community health and first aid volunteers. The additional cost of these programs was estimated to be US\$130,000 per year. These efforts would not have directly impacted employee healthcare costs, but could have further enhanced Newmont's local reputation.

Water and Sanitation Services

Diarrheal diseases were the fourth largest source of hospitalizations at 4.2 percent and the tenth largest cause of death at 2.3 percent in Ghana which made improvements to water and sanitation services a national priority. By law, Newmont had to address the water and sanitation needs in its resettlement villages. Newmont's water and sanitation systems were improved compared to other communities in the district. The systems led to a 30 percent to 40

percent reduction in the incidence of diarrhea and the avoidance of a total of US \$28,000 in medical costs per year for treatment of the 40 workers no longer plagued with the diseases. Better sanitation also contributed to local education by keeping children in school, which reduced absenteeism and, more importantly, further boosted Newmont's reputation. Given the success of the program in resettlement villages, the company was debating an extension of the program to all communities within the district in partnership with the local government and communities. This would have increased its fixed costs for 2010 from US \$421,000 to US \$686,000. It was also debating providing maintenance, participatory monitoring, and capacity building on an ongoing basis, which would cost US \$130,000 per year from 2010 to 2020. The extension would have provided negligible direct benefits to Newmont, but could have cemented the company's reputational gains.

Employment and Training

Newmont began employee training before the construction at Ahafo commenced. Workers received 2 weeks of training on basic employability skills and had access to over 800 distinct training course modules, which were also shared with other Ghanaian vocational schools free of charge. Contractors had to provide their own training and, for unskilled jobs, had to hire from the local labor pool.

²⁴Newport Mining Corporation, "Kenyasi Health Center Renovated," September 6, 2011 <http://www.newmont.com/features/our-communities-features/Kenyasi-Health-Center-Renovated> (accessed October 3, 2013).

²⁵International Council on Mining & Metals, "Newmont recognized for HIV/AIDS and Malaria program," June 17, 2010 <http://www.icmm.com/page/40397/newmont-recognized-for-hiv/aids-and-malaria-program> (accessed October 3, 2013).

Starting in 2011, Newmont sponsored 5,000 junior high school graduates, who otherwise could not have furthered their education, to complete a one-year government-assisted Technical and Vocational Education Training (TVET) program.²⁶ Newmont's own training program, the Apprenticeship Program, lasted four years. As of 2012, it had enrolled 69 students, with a goal of reaching 91, for training in areas such as plant maintenance, electrical work, and auto repair. Newmont spent about US \$25,000 per student over 4 years and provided each student with a stipend, school materials, food, transportation, and safety equipment. Competency levels on an examination rose from 35 percent to 85 percent over the course of the program.

The company aimed to hire 90 percent of its graduates rather than having to recruit more expensive workers from elsewhere in Ghana and from outside of the country. It estimated that turnover among these workers would be 50 percent lower than among outsiders, whose average tenure was 3 years. Lower turnover would have meant lower hiring costs, which averaged 25 percent of first-year salaries. In addition, Newmont forecast that accident rates among its trainees would be 50 percent lower. This would have further cut expenses, reducing unscheduled downtime and equipment damage, which together cost about US \$360,000 per year. Newmont also estimated that productivity would be twice as high among its trainees.

Newmont also replicated its Peru linkages program experience at Ahafo. By doing this, it sought to foster the growth of local suppliers and assist in the development of new and existing non-mining businesses. It offered training in topics including record keeping, management, and finance. Partly as a result, local procurement

increased from US \$1.7 million in 2006 to US \$14 million in 2010, with 373 local businesses receiving contracts. Training provided through linkages was associated with revenue growth for local businesses of 409 percent, cost decreases of 11.5 percent, and average monthly income boosts of 224 percent. The program also generated a 40 percent increase in the proportion of local firms that paid taxes.

Local sourcing did not save Newmont money in the short-term. In fact, developing a more robust local business base involves significant administrative oversight and capacity building. The company believed, however, that the short-term costs associated with developing a local supplier base, as compared to sourcing from non-local suppliers, would have long-term rewards and offset the short-term costs — some estimates indicated that the short-term costs of local suppliers were 15 percent to 20 percent higher, on average. Newmont believed that buying locally enhanced its reputation and increased the community's loyalty to the company. It could have also helped Newmont comply with a proposed Ghanaian law mandating 10 percent local sourcing. The IFC supported the program with a US\$1.5 million contribution and technical assistance, and the World Business Council for Sustainable Development and the Chartered Institute of Purchasing & Supply recognized it as a best practice.

²⁶Michael Boateng, The Ghanaian Chronicle, "Gov to offer free apprenticeship training to JHS graduates," July 26, 2011 <http://thechronicle.com.gh/gov-to-offer-free-apprenticeship-training-to-jhs-graduates> (accessed October 3, 2013).

Agricultural Programs

The Ahafo Agricultural Growth Initiative (AAGI) sought to create sustainable economic growth in Ahafo by strengthening agricultural production, improving management capacity among several thousand local farmers, and increasing linkages between these farmers and the regional and national supply chain. After completing a needs assessment, the program sponsored training, helped the farmers organize, and then facilitated linkages to public and private financial institutions, market intermediaries, and final customers. The linkage to the national Export Development and Investment Fund yielded support for investment in a storage and processing center and provided funding for seeds and other inputs.

Newmont Ahafo Development Foundation (NADeF)

In 2008, Newmont established the community development foundation NADeF. The company contributed US\$1 per ounce of gold produced and 1 percent of Ahafo's net profit to the foundation annually. The foundation was required to reserve a portion of these contributions for its endowment fund — 10 percent in the first 5 years, increasing by 5 percent every 5 years to a maximum of 25 percent. This translated into US\$2.1 million in contributions, reflecting profits and production from the start of operations to the inception of the foundation — US \$1.3 million in 2009, US \$1.7 million in 2010, and US \$4.9 million in 2011. Modeled on the ALAC experience in Peru, NADeF made grants to local projects that were likely to be sustainable and that reflected the interests of the community. Its stated mission was “to empower communities through grants, knowledge-sharing, partnerships, and capacity building to achieve sustainable development.”²⁷ Community members and Newmont

representatives jointly governed NADeF. The foundation sought to involve contractors and other members of the value chain in its operations, both through voluntary donations and in-kind contributions. Each community also formed a Sustainable Development Committee with membership from youth groups, women's organizations, unit committees, traditional and non-traditional authorities, and other members of the community.

Funds were explicitly allocated among member communities with a complex weighting system that allocated more funds to communities that were more severely impacted by the mine, demonstrated a greater commitment to the foundation, had a larger population, and had more land area in the mining lease. Within each community, the foundation sought to allocate its funds so that 24 percent went to human resource development (e.g., scholarships and pre-job training), 23 percent to infrastructure (e.g., water services, electricity, roads, clinics and health centers, schools, public toilet facilities, and incinerators), 18 percent to social amenities (e.g., community centers, police posts, and community libraries), 17 percent to economic empowerment (e.g., employment, entrepreneurship, credit, and capacity building), 12 percent to natural resource protection, and 6 percent to cultural heritage and sports (e.g., festivals, palaces, cross-cultural activities, and sports). As of 2012, over 2,000 students received scholarships and 30 distinct projects were completed, including the construction of a teacher's quarters to house teachers who had previously commuted up to 50 kilometers, new classroom blocks, community libraries, mechanized boreholes, electrification, public toilet facilities, and medical clinics. Newmont managers believed the fund to be among their most important legacies.

²⁷Newmont Ahafo Development Foundation, “Who we are?” http://www.nadef.org/pages/sections.php?site_id=nadef&mid=2&sid=7 (accessed October 3, 2013).

REPUTATIONAL CAPITAL

As the regional vice president for ESR and the consultants from IFC and Deloitte began their work, they had to find a way to capture not only the direct costs and benefits of the Ahafo mine, but also the indirect ones. Recording direct costs was time-intensive, but required only straightforward reviews of company books and Ghanaian economic data. Newmont knew the wages of its workers, the costs of the land and buildings in the resettlement villages, and the amounts it had invested in services such as healthcare and education. The team was able to calculate the economic benefit of wages paid and structures built and even diseases prevented among employees.

The indirect benefits and costs of Newmont's sustainability programs — the intangibles grouped under the rubric of reputational capital — were more elusive. Sometimes, as with the lower resettlement costs at Amoma, they were easy to capture. Other times, they were devilishly difficult to pin down (e.g., the dollar benefit of strikes foregone, protests averted, and bad press avoided). Often, no single event or benchmark existed for making comparisons and estimates.

Without these benchmarks, the team and the consultants relied instead on a Newmont risk management checklist to attempt to quantify the expected indirect benefits. Newmont had made it a practice to track seven drivers of stakeholder perceptions:

- Migration to the mine area and migrants' impact on local healthcare, infrastructure, and social services.
- Media coverage originating from local community or NGO complaints.
- Community expectations for jobs.
- Anti-mining groups that influenced

stakeholders to deny Newmont opportunities for community engagement or led to delays in exploration access.

- Water quality or water supply related impacts attributed to the mine (real or perceived).
- Compliance with Ghana's water company standards.
- Legal risks, such as revocation of licenses due to compliance, or monetary fines related to compliance.

Team members evaluated each of the sustainability programs based on the effects on these drivers. Their subjective internal analysis suggested that NADeF had the greatest impact on the widest array of risks, followed by the water, sanitation, and community health programs. Training of local employees and linkages also scored well.

Next, discussions among the consultants and Newmont staffers led to the following potential cost savings:

- Fewer roadblocks and production interruptions. Before the engagement campaign, interruptions occurred about every other year; lasted, on average, 1 week; and cost about US \$3 million. No incidents had occurred since 2003.
- Fewer complaints. Before engagement, local people filed an average of 12 serious complaints a year to Newmont which led to investigative and follow-up costs of about US \$50,000 for each complaint.
- Fewer protests about exploration. Before engagement, protests would suspend exploration roughly every other year at a cost of approximately US \$5 million per suspension.
- Fewer fines and legal judgments. In the early

phase of operations, legal problems arose about every 3 years at a cost of US \$3 million for each case.

- Fewer protests about water availability and quality. These complaints had previously occurred every other year, generating approximately US\$200,000 in remediation costs each time.

By plugging this data into the IFC-Deloitte tool, the team and consultants could have developed probabilistic scenarios. They could have varied the size or quality of the many sustainability programs and then assessed how those changes might have affected the incidence or magnitude of many of these risks. This would have let them estimate the indirect benefits of sustainability. These estimates could have then been added to the direct benefits and compared against costs to identify the net present value of sustainability at Ahafo.

CONCLUSION

As the regional vice president for ESR prepared for his meeting, he was coming to appreciate the usefulness and limitations of the FV Tool methodology. He knew that the net present value figure that he and the consultants arrived at would be an estimate and not a definitive figure that would resolve all debate over the worth of Newmont's sustainability programs. But he also understood that all net present value calculations are estimates, entailing assumptions about what might happen. Even the discount rate — a critical component of any net present value calculation — was, at some level, a guess.

Now he at least knew that he could give his boss a number and that he could compare that figure with the ones coming out of other departments. But he wanted to go further. The process of estimating the net present value of sustainability was revealing gaps in Newmont's engagement processes. The regional vice president for ESR was coming to realize that, while Newmont had employed, even developed, some of the best practices in its industry, much work remained.

DISCUSSION QUESTIONS

1. Is it reasonable to demand that a sustainability team make the business case for their sustainability budget? Why or why not?
2. Should efforts at improving sustainability be backed by a parallel set of principles and objectives? Or an integrated one? Or both? Why?
3. Make a recommendation as to whether the following three programs as described in the case should be expanded:
 - Water and sanitation programs.
 - Community health
 - Linkages programs.
 - NADeF.
4. What additional information would you have liked to have in order to allow you more confidence in your decision?
5. What are the critical process considerations in designing the initiative to assess the net present value of the sustainability initiatives?
6. What should be included in the regional vice president for ESR's proposal? Specifically, what will be required to realize the full potential of this pilot initiative for Newmont?
7. How easy would it be for your (current or past) employer to implement such a process? Why?

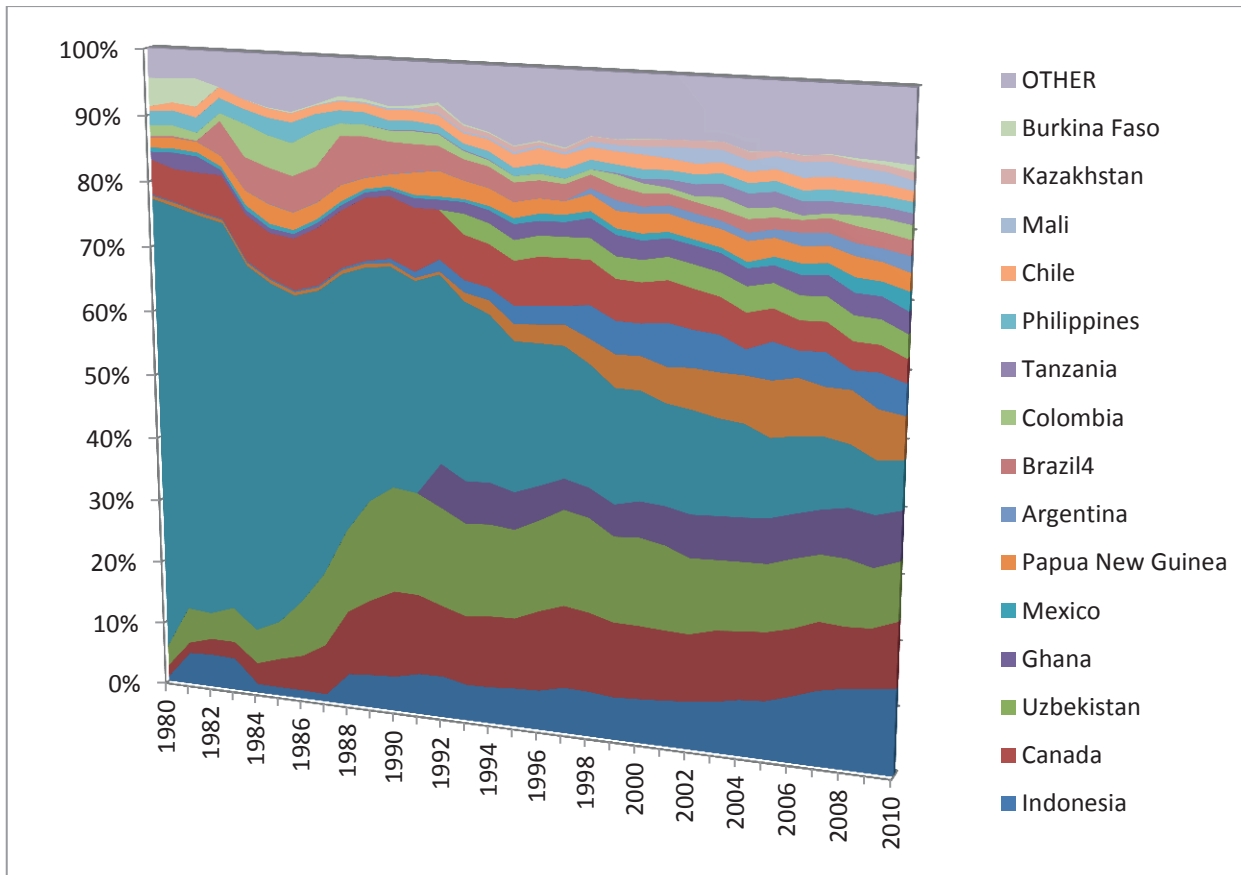
©2013 The Wharton School of the University of Pennsylvania. All rights reserved. You may not copy, reproduce, create derivative works from, publicly distribute, or publicly display or transmit any of these materials, including but not limited to storage in a retrieval system, or transmission electronically, mechanically, via photocopying, recording, or other means, without prior written permission from The Wharton School, except as permitted by law. To request permission, please contact coursematerials@wharton.upenn.edu. Some of these materials are used with permission from third parties and are not owned by The Wharton School.

ABOUT THE: *ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) INITIATIVE*

The Environmental, Social and Governance Initiative conducts academically rigorous and practically relevant research with industry partners and across all Wharton departments that investigates when, where, and how ESG factors impact business value. Informed by research, we offer 30+ courses that MBA and undergraduate students can assemble into a major or concentration, over a dozen co-curricular experiences, and three Executive certificate programs. Led by Vice Dean Witold Henisz, the ESG Initiative advances Wharton's best-in-class education of current and future leaders, enabling them to serve a world undergoing tremendous change.

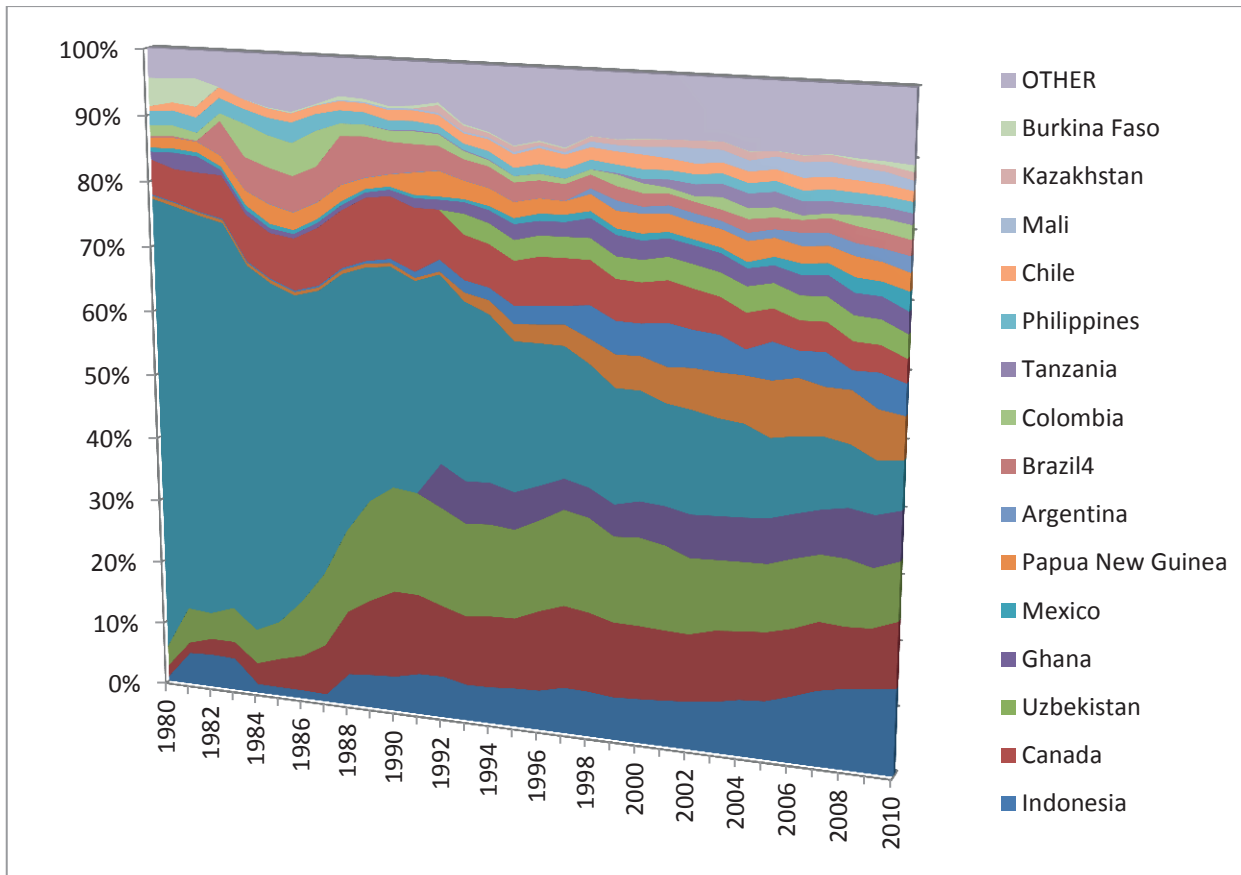


Exhibit 1: World Gold Production Share by Country, 1980-2010



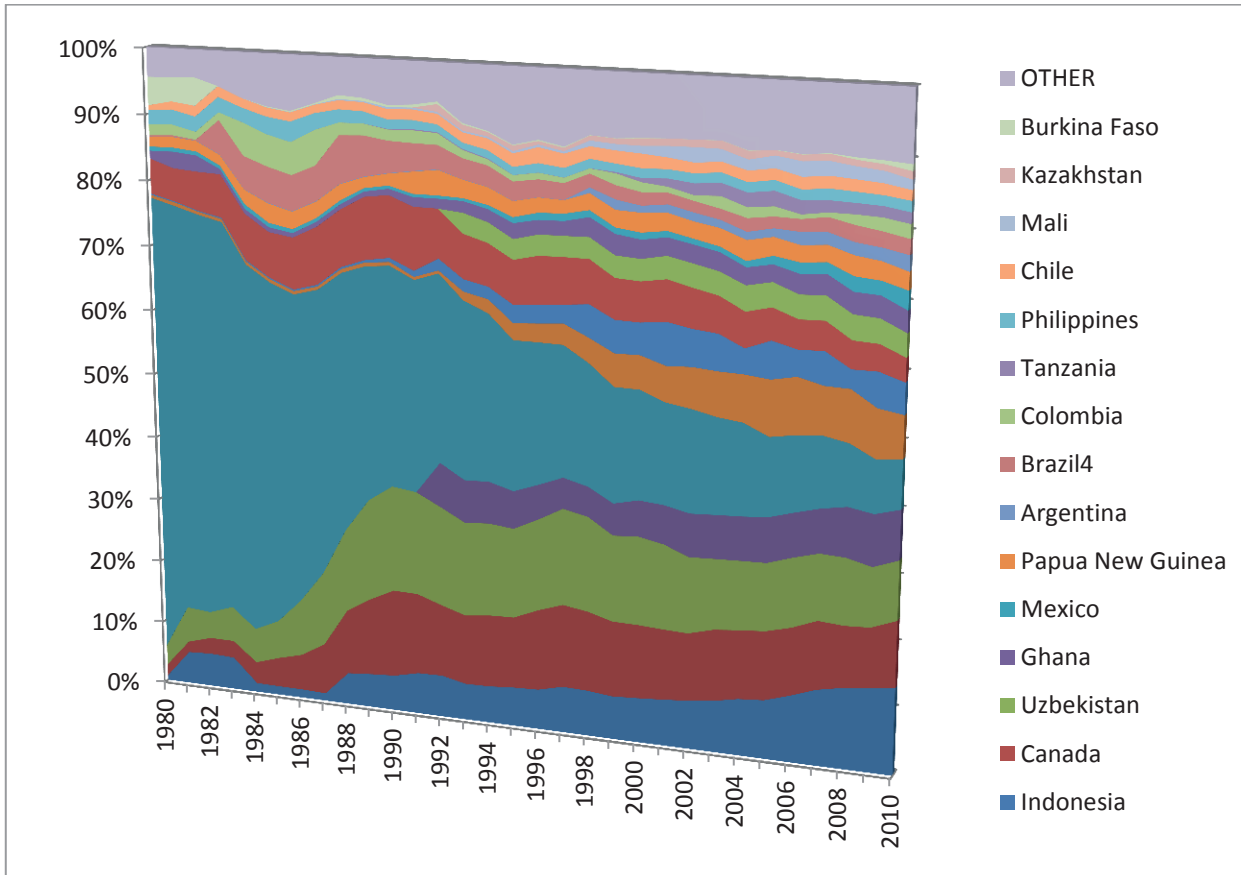
Source: World Gold Council.

Exhibit 2: Newmont's Proven Reserve Share by Country, 1980-2010



Source: Newmont Annual Reports.

Exhibit 3: Newmont's Production Share by Country, 1980-2010



Source: Newmont Annual Reports.

Exhibit 4: Real Price of Gold and Newmont's Cost of Production, 1980-2012



Source: Newmont Annual Reports.

Exhibit 5: Newmont's Financial Data (US\$ Millions, Except per Share)**Income Statement**

Costs and expenses	2003	2004	2005	2006	2007	2008	2009	2010	2011
Costs applicable to sales	1,634	2,215	2,320	2,335	2,854	3,114	3,008	3,484	3,890
Amortization	530	662	644	589	695	747	806	945	1,036
Reclamation and remediation	--	--	--	--	--	--	59	65	120
Exploration	76	107	147	166	177	214	187	218	350
Advanced projects, research, and development	35	80	73	81	62	166	235	216	373
General and administrative	130	116	134	136	142	144	159	178	198
Write-down of property, plant and mine development	--	--	--	3	10	137	7	6	2,084
Other expenses	50	33	111	251	246	360	358	261	265
Total	2,490	3,304	3,513	3,588	5,879	4,944	4,719	5,373	8,316

	2003	2004	2005	2006	2007	2008	2009	2010	2011
Other income (expenses)	362	4	171	(44)	1	21	(32)	(170)	(232)
Income (loss) from continuing operations	511	453	374	563	(963)	829	2,109	3,144	1,108
Income (loss) from discontinued operations	--	37	(52)	228	923	24	(16)	(28)	(136)
Net income (loss)	476	443	322	791	(1,886)	853	2,093	3,116	972
Net income attributable to noncontrolling interest	--	--	--	--	--	--	(796)	(839)	(606)
Net income (loss) attributable to Newmont stockholders	--	--	--	--	--	--	1,297	2,277	366
Income (loss) per common share	\$1.16	\$1.00	\$0.72	\$1.76	(\$4.17)	\$1.88	\$2.66	\$4.63	\$0.74
Diluted	\$1.15	\$0.99	\$0.72	\$1.75	(\$4.17)	\$1.87	\$2.66	\$4.55	\$0.75
Cash dividend declared per common share	\$0.17	\$0.30	\$0.40	\$0.40	\$0.40	\$0.04	\$0.40	\$0.50	\$1.00

Exhibit 5 (continued): Newmont's Financial Data (US\$ Millions, Except per Share)**Balance Sheet**

Assets	2003	2004	2005	2006	2007	2008	2009	2010	2011
Cash and Cash Equivalents	1,314	781	1,082	1,166	1,231	435	3,215	4,056	1,760
Trade Receivables	--	77	94	142	177	104	438	582	300
Accounts Receivable	90	130	136	216	168	223	102	88	320
Inventories	225	244	320	382	463	519	493	658	714
Stockpiles and ore on leach pads	248	230	255	378	373	324	403	617	671
Other current assets	75	71	95	93	87	458	900	962	1,133
Property, plant, and mine development	2,360	5,136	5,645	6,847	9,140	10,132	12,370	12,907	15,881
Investment	734	386	955	1,319	1,531	655	1,186	1,568	1,472
Stockpiles and ore on leach pads (total/long-term)	306	525	603	812	788	1,145	1,502	1,757	2,271
Deferred income tax assets	752	494	517	799	1,027	799	937	1,437	1,605
Other long-term assets	96	184	183	178	230	178	482	741	857
Total Assets	11,050	12,776	13,992	15,601	15,598	15,601	22,299	25,663	27,474

Current Liabilities	2003	2004	2005	2006	2007	2008	2009	2010	2011
Debt	190	286	196	159	255	169	157	259	689
Accounts payable	163	222	232	340	339	412	396	427	561
Employee-related Benefits	--	129	176	182	153	178	250	288	307
Income and Mining taxes	--	--	--	364	88	58	200	355	250
Other current liabilities	320	--	--	520	665	779	1,317	1,418	2,133
Total Current Liabilities	834	4,063	4,685	1,739	1,500	1,596	2,320	2,747	3,940

Current Liabilities	2003	2004	2005	2006	2007	2008	2009	2010	2011
Debt	190	286	196	159	255	169	157	259	689
Accounts payable	163	222	232	340	339	412	396	427	561

Employee-related Benefits	--	129	176	182	153	178	250	288	307
Income and Mining taxes	--	--	--	364	88	58	200	355	250
Other current liabilities	320	--	--	520	665	779	1,317	1,418	2,133
Total Current Liabilities	834	4,063	4,685	1,739	1,500	1,596	2,320	2,747	3,940

Exhibit 5 (continued): Newmont's Financial Data (US\$ Millions, Except per Share)

Equity	2003	2004	2005	2006	2007	2008	2009	2010	2011
Common stock	638	656	666	677	696	709	770	778	784
Additional paid-in stock	6,423	6,524	6,578	6,703	6,696	6,639	8,158	8,279	8,408
Stockholder's equity	--	--	--	--	--	--	10,703	13,345	12,896
Non-controlling interest	--	--	--	--	--	--	1,910	2,371	2,875
Total equity	7,384	7,938	8,376	9,337	7,548	7,102	12,613	15,716	15,771
Total liabilities and equity	11,050	12,776	13,992	15,601	15,598	15,839	22,299	25,663	27,474

Cash Flows

Operating Activities	2003	2004	2005	2006	2007	2008	2009	2010	2011
Net income (loss)	476	443	322	791	(1,886)	853	2,093	3,116	972
Amortization	530	662	644	589	695	747	806	945	1,036
Stock-based compensation and other non-cash benefits	--	--	--	50	46	50	57	70	79
Reclamation and remediation	23	25	27	47	29	102	59	65	101
Revaluation and contingent consideration	--	--	--	--	--	--	23	2	1
Loss (income) from discontinued operation	--	(37)	52	(228)	923	(24)	16	28	136
Write-down of property, plant, and development	--	--	--	3	10	137	7	6	2,084
Impairment and marketable securities	--	--	--	--	--	--	6	1	180
Deferred income taxes	(31)	74	(12)	(127)	(152)	(300)	1	(380)	(671)
Gained on asset sales, net	(15)	(28)	(48)	(19)	(16)	(72)	(24)	(64)	(81)
Other operating adjustments and write-downs	(53)	(23)	56	71	25	76	97	145	65
Net change in assets and liabilities	--	--	--	(347)	(752)	(642)	(227)	(754)	(311)
Net cash provided from continuing operations	645	1,549	1,253	1,129	525	1,403	2,914	3,180	3,591
Net cash provided from (used in) discontinued operations	39	8	(10)	96	138	(111)	33	(13)	(7)
Net cash provided from operations	684	1,557	1,243	1,225	663	1,292	2,947	3,167	3,584

Operating Activities	2003	2004	2005	2006	2007	2008	2009	2010	2011
Net income (loss)	476	443	322	791	(1,886)	853	2,093	3,116	972
Amortization	530	662	644	589	695	747	806	945	1,036
Stock-based compensation and other non-cash benefits	--	--	--	50	46	50	57	70	79
Reclamation and remediation	23	25	27	47	29	102	59	65	101
Revaluation and contingent consideration	--	--	--	--	--	--	23	2	1
Loss (income) from discontinued operation	--	(37)	52	(228)	923	(24)	16	28	136
Write-down of property, plant, and development	--	--	--	3	10	137	7	6	2,084
Impairment and marketable securities	--	--	--	--	--	--	6	1	180
Deferred income taxes	(31)	74	(12)	(127)	(152)	(300)	1	(380)	(671)
Gained on asset sales, net	(15)	(28)	(48)	(19)	(16)	(72)	(24)	(64)	(81)
Other operating adjustments and write-downs	(53)	(23)	56	71	25	76	97	145	65
Net change in assets and liabilities	--	--	--	(347)	(752)	(642)	(227)	(754)	(311)
Net cash provided from continuing operations	645	1,549	1,253	1,129	525	1,403	2,914	3,180	3,591
Net cash provided from (used in) discontinued operations	39	8	(10)	96	138	(111)	33	(13)	(7)
Net cash provided from operations	684	1,557	1,243	1,225	663	1,292	2,947	3,167	3,584

Exhibit 5 (continued): Newmont's Financial Data (US\$ Millions, Except per Share)

Financing Activities	2003	2004	2005	2006	2007	2008	2009	2010	2011
Proceeds from debt, net	493	56	584	198	3,008	5,078	4,299	--	2,011
Repayment of debt	(1,162)	(254)	(218)	(111)	(2,036)	(4,487)	(2,731)	(430)	(2,273)
Proceeds from stocks issuance, net	1,287	78	43	78	51	29	1,278	60	40
Sale of noncontrolling interests	--	--	--	--	--	--	638	229	--
Acquisition of noncontrolling interests	--	--	--	--	--	--	(287)	(110)	--
Dividends paid to noncontrolling interests	(146)	(237)	(186)	(264)	(270)	(389)	(394)	(462)	(117)

Dividends paid to common stockholders	(71)	(133)	(179)	(180)	(181)	(182)	(196)	(246)	(494)
Other	--	--	--	--	--	--	(35)	44	(21)
Net cash provided from (used in) financing activities	401	(475)	38	(333)	465	123	2,570	(915)	(854)
Effect of exchange rate changes on cash	24	2	(3)	3	50	(54)	44	8	41
Net change in cash and cash equivalents	729	(348)	301	84	65	(796)	2,780	841	(2,296)
Cash and cash equivalents at the beginning of period	400	1,129	781	1,082	1,166	1,231	435	3,215	4,056
Cash and cash equivalents at the end of period	1,129	781	1,082	1,166	1,231	435	3,215	4,056	1,760

Source: Newmont Mining Corporation.

Exhibit 6: Ghanaian Macroeconomic Data

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Population, total (millions)	19.17	19.63	20.11	20.61	21.12	21.64	22.17	22.71	23.26	23.82	24.4
Life expectancy at birth, total (years)	58	59	59	60	60	61	62	62	63	63	64
GDP per capita, PPP (constant 2005 international \$)	1,067	1,083	1,105	1,134	1,169	1,208	1,255	1,304	1,380	1,401	1,475
GDP per capita growth (annual %)	1.27	1.53	2	2.67	3.05	3.36	3.85	3.92	5.86	1.55	5.22
Inflation, consumer prices (annual %)	25	33	15	27	13	15	11	11	17	19	11
Unemployment, total (% of total labor force)	10	--	--	--	--	--	4	--	--	--	--
Trade (% of GDP)	116	110	97	97	100	98	66	65	70	72	70
Foreign direct investment, net inflows (% of GDP)	3.33	1.68	0.96	1.79	1.57	1.35	3.12	3.47	4.28	6.49	7.82
Current account balance (% of GDP)	(7.76)	(6.11)	(0.52)	1.33	(6.65)	(10.39)	(5.11)	(8.73)	(12.42)	(6.15)	(8.36)

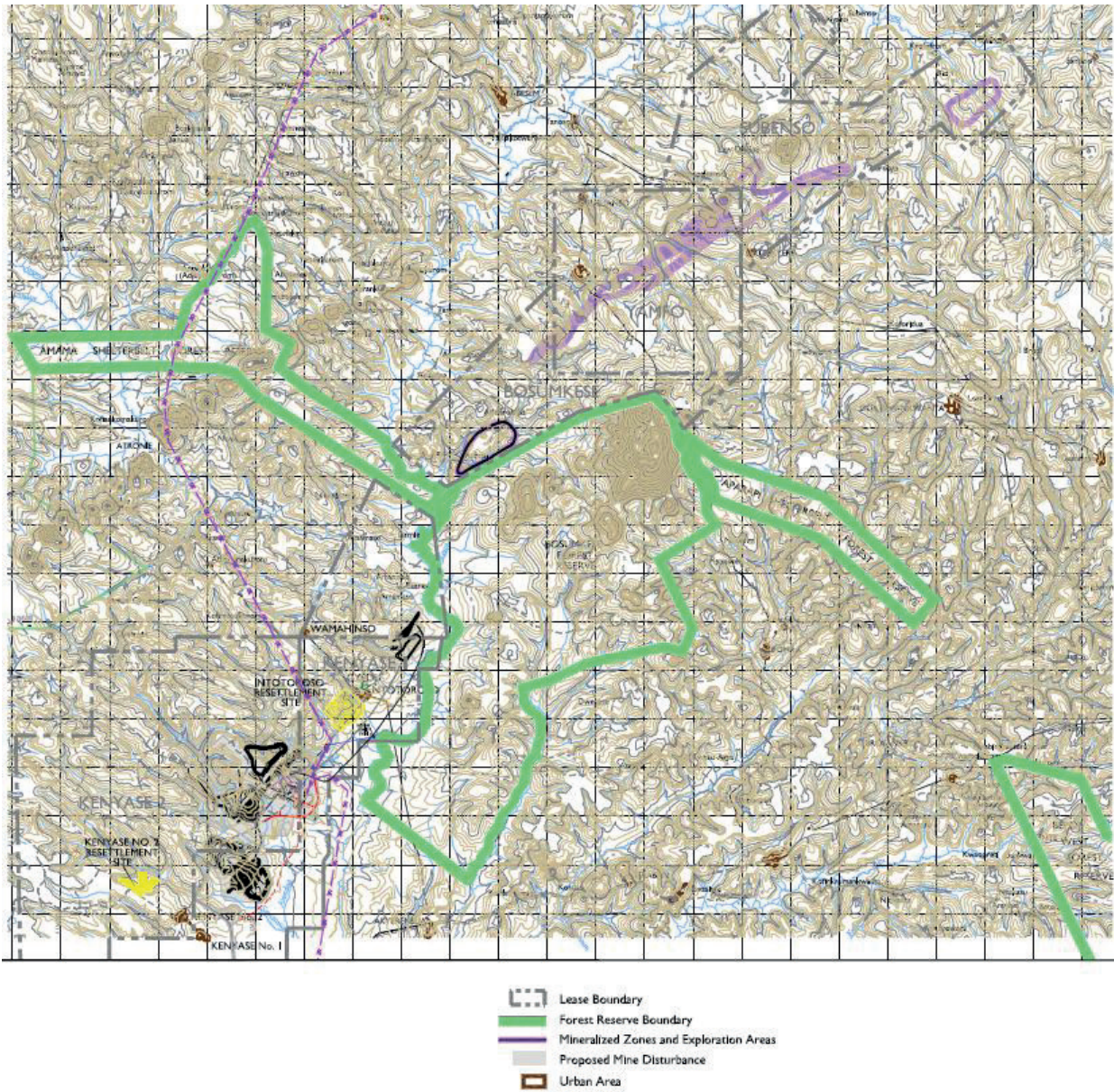
Source: The World Bank Group, "Ghana: World Development Indicators," 2013.

Exhibit 7: Map of Ahafo in Ghana



Source: Newmont Ghana Gold Ltd., "Environmental and Social Impact Assessment: Chapter 1," August 2005, http://www.newmont.com/sites/default/files/Chapter%201_Final_082405.pdf, p. 3 (accessed October 3, 2013).

Exhibit 8: Ahafo Mine Site Layout



Source: Newmont Ghana Gold Ltd., "Environmental and Social Impact Assessment: Chapter 1," August 2005, http://www.newmont.com/sites/default/files/Chapter%201_Final_082405.pdf, p. 9 (accessed October 3, 2013).

Appendix 1: Newmont Organizational Vision, Values, and Mission as Restated in January 2009

Vision:

We will be the most valued and respected mining company through industry leading performance.

Values:

- Act with integrity, trust, and respect
- Reward creativity, a determination to excel, and a commitment to action.
- Demonstrate leadership in safety, stewardship of the environment and social responsibility
- Develop our people in pursuit of excellence
- Insist on and demonstrate teamwork, as well as honest and transparent communication
- Promote positive change by encouraging innovation and applying agreed upon practices

Mission:

We will build a sustainable mining business that delivers top quartile shareholder returns while leading in safety, environmental stewardship and social responsibility.

Source: Newmont Mining Corporation, "Our Values," <http://www.newmont.com/about/values> (accessed October 3, 2013).

APPENDIX 1:

Newmont Organizational Vision, Values, and Mission as Restated in January 2009

Vision:

We will be the most valued and respected mining company through industry leading performance.

Values:

- Act with integrity, trust, and respect
- Reward creativity, a determination to excel, and a commitment to action.
- Demonstrate leadership in safety, stewardship of the environment and social responsibility
- Develop our people in pursuit of excellence
- Insist on and demonstrate teamwork, as well as honest and transparent communication

Source: Newmont Mining Corporation, "Our Values," <http://www.newmont.com/about/values> (accessed October 3, 2013).

- Promote positive change by encouraging innovation and applying agreed upon practices

Mission:

We will build a sustainable mining business that delivers top quartile shareholder returns while leading in safety, environmental stewardship and social responsibility.

APPENDIX 2:

Awards and Recognitions Received by Newmont One Billion Trees Award²⁸

Award granted by the Ministry of Forestry of the Republic of Indonesia to a number of businesses, universities, and community organizations for their success and participation in forestry development and supporting the success of the 2011 One Billion Tree Campaign. Newmont Mining Corporation's (Newmont's) PT Newmont Nusa Tenggara (PTNNT) affiliate at Batu Hijau was one of the three mining companies to receive the award in the mine reclamation category.

Gold ADITAMA Award

In 2010, PTNNT received the Gold ADITAMA Award in Environmental Management in Mining and the Trophy in Mining Environmental Management in the mineral mining category from the Indonesian Ministry of Energy and Mineral Resources. The awards are granted for best performance in environmental management.

Green PROPER Award

PTNNT received the Green PROPER Award from the Republic of Indonesia Ministry of the Environment in 2010—its fifth win over a period of 10 years. The award is given to a business or activity whose environmental management exceeds requirements and employs the principles of reduction, reuse, recycling, and recovery of waste.

Strong Performance in the Ghana Environmental Protection Agency's (EPA's) 2012 Akoben Ratings

In 2012, Newmont's Ahafo mine and Akyem project received its second 'blue' rating from the Ghana EPA for best practices in environmental management and performance and corporate social responsibility.

²⁸ Newmont Mining Corporation, "Annual Investor Day Meeting," New York City, May 23, 2012, http://newmont.q4web.com/files/doc_presentations/Investor%20Day%202012%20FINAL%20FOR%20POSTINGv 2.pdf

APPENDIX 2: (Continued)

Awards and Recognitions Received by Newmont 2011 Excellence in Mine Reclamation Award

Category: Wildlife Habitat Enhancement for our work at the Mule Canyon Mine in Lander County, Nevada. Our restoration work has created a “wildlife oasis” in an area impacted by wildfires.

2011 Excellence in Mine Reclamation Award

Category: Overall Mine Reclamation recognizing the completion of all closure permit obligations at the Trinity Mine in Pershing County, Nevada. The Trinity Mine was acquired by Newmont in a 1997 merger with Santa Fe Gold.

Named to the Dow Jones Sustainability World Index (DJSI World)

Newmont was named to the DJSI World for the sixth consecutive year. The DJSI World tracks the performance of 2,500 leading worldwide companies, independently evaluating their long-term economic, environmental, and social performance.. The top 10 percent of performers are selected from among 57 different industry groups.

Corporate Responsibility (CR) Magazine’s 100 Best Corporate Citizens in 2012

CR Magazine ranked Newmont at 42 in its 100 best corporate citizens list which is based on more than 360 data points of publicly available information in seven categories: environment, climate change, human rights, philanthropy, employee relations, financial performance, and corporate governance.

Achieved Climate Registered™ Status

Newmont was among the leading North American companies honored in 2010 by the Climate Registry (TCR) for achieving Climate Registered™ status. TCR is a rigorous program that requires participating companies to measure their carbon footprint, verify the findings with an independent third party, and publicly report the results.

APPENDIX 2: (Continued)

Appendix 2 (continued): Awards and Recognitions Received by Newmont Selected to Join the Carbon Disclosure Leadership Index

In 2008, the Carbon Disclosure Project commended the company for its approach to climate change disclosure and added it to the Carbon Disclosure Leadership Index which highlights constituent companies within the Financial Times Stock Exchange (FTSE) Global 500 Index that have displayed the most professional approach to corporate governance with respect to climate change disclosure practices. Companies are assessed on their climate change disclosure and performance. A high disclosure score indicates a clear consideration of business-specific risks and potential opportunities related to climate change and good internal data management practices for understanding greenhouse gas (GHG) emissions.

General Electric's (GE's) Return on Environment Award

The award recognizes customers for significantly surpassing and improving environmental and industrial operational goals, while balancing industrial demands. GE's Infrastructure, Water & Process Technologies division recognized Newmont's Carlin operation for its dust-suppression activities to reduce environmental impacts. Newmont Nevada had been using GE's DusTreat product on haul roads since 2008. The product prevents dust particles from becoming airborne and helps reduce water and fuel consumption. The award was granted to Newmont in February 2011 to recognize environmental stewardship accomplishments for 201029.

Certification at all Operating Sites

As of 2007, Newmont had adopted the International Organization for Standardization (ISO) Environmental Standard 14001 and the Occupational Health and Safety Advisory Services (OHSAS) 18001 as standards for certifying its operations. By 2010, the company reported that all Newmont operations were certified except for its Boddington, Australia, location. At year-end 2011, Boddington received notice that they had achieved its certification status.

The ISO 14001 is a universally acknowledged as the key standard which organizations can measure their actual environmental performance and validate their environmental management system. OHSAS 18001 is the internationally accepted framework that defines the requirements for establishing, implementing, and operating an occupational health and safety management system.

29 Newmont Mining Corporation, "Nevada Wins General Electric's Return on Environment Award," September 6, 2011, <http://www.newmont.com/features/our-environment-features/Nevada-Wins-General-Electric-Return-on-Environment-Award%20>

APPENDIX 2: (Continued)

Awards and Recognitions Received by Newmont

Micro Business Empowerment Through Corporate Social Responsibility Award³⁰

The Indonesian Ministry for Cooperatives and Small and Medium Enterprises granted an award to PTNNT for its participation and commitment to Micro Business Empowerment through Corporate Social Responsibility Programs.

Newmont Ghana Gold Limited Judged Most Outstanding Corporate Income Tax Payer for 2011

This award was granted at the maiden Ghana Revenue Authority awards ceremony at the State Banquet Hall in Accra. The company fulfilled its obligation to the Government of Ghana by paying an amount of US\$180.57 million.

2013 Safety Award from the Nevada Mining Association

. Newmont was among a select group of mining organizations whose efforts emulate the industry-wide motto to send every mining employee home safe and health after every shift.

Source: Newmont Mining Corporation.

³⁰ PT Newmont Nusa Tenggara, “Awards,” <http://www.ptnnt.co.id/social-responsibility.aspx>