African Natural Resources Center
African Development Bank

AGA Malaria and Public-Private Partnerships in Ghana's Health Sector to Obtain Value from Extractives Projects

A CASE STUDY

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COVER PHOTO A training session for spraying against mosquitos. Photo provided by AGA Malaria

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Preface

The African Natural Resources Center (ANRC) has commissioned a series of case studies to bridge the knowledge gap in natural resources project-driven SME development, supply chain-based domestic linkages, extractives revenue management, public-private partnerships and fiscal policy formulation:

- Anglo American Corporation's Anglo Zimele small business development initiative in South Africa,
- Angola's Partnership with Total to implement national and local content policy,
- AngloGold Ashanti Malaria and public-private partnership in Ghana,
- Botswana's Mineral Revenues, Expenditure and Savings Policy,
- Chile's mining revenue fiscal policy implementation,
- Debswana's Diamond Company and Botswana's HIV and AIDS public partnership program,
- Nigeria's Local Content Board's policy and institutional arrangements.

This case study demonstrates strategic public-private partnerships between extractives companies and governments and their impact on human development through an initiative in Ghana's health sector.

The report would not have been possible without contributions from and the support of a number of partners and experts: the AGA Malaria project team whose management granted ANRC access to relevant records; Professor Joe Tuffour, the consultant who collected information and documented the findings; and the ANRC team through Thomas Viot, who coordinated the project with Dr. Hudson Mtegha, who also edited the final report.

Foreword

In the natural resources sector, national governments perform a central role by acting as stewards in resources development. This requires a balance of policy, legal and institutional considerations. It also requires governments to consider the needs of various stakeholders. In the extractives sector, the importance of protecting inter-generational benefits is a particular challenge given the finite nature of resources. This places an extra burden on policymakers to increase the value obtained from extractives while giving investors a fair return.

Additionally, to increase development outcomes, governments must make informed choices while meeting public expectations to benefit more from extractives projects. A particular challenge facing both investors and governments is to ensure that the impact of extractives projects is felt as early as possible. Another is to ensure that countries begin to enjoy the benefits despite the time lag between project commissioning, production and payment of taxes.

Equally important is the need to stabilize the project environment such that, regardless of the project life cycle, commodity market conditions and level of profitability, projects continue to have a positive effect on human development. The answer in part lies in delinking revenue from human development strategies by assisting governments with

other options for delivering tangible benefits.

Other important challanges facing countries include:

- Striking a balance between the impact on local and national economies;
- Making the correct trade-off between fiscal and non-fiscal benefits;
- Integrating projects into national economies to ensure local content while capitalizing on the global outreach of multinational corporation supply chains and related economies of scale;
- Ensuring that public-private partnerships increase human impact, promote small and medium enterprises (SMEs) and deliver social welfare services directly to those affected by extractives projects;
- Securing inter-generational value by investing revenue in productive assets.

Many resource-rich countries need to generate concrete solutions and knowledge to overcome these challenges and build their own capacity. In view of this the African Natural Resources Center (ANRC) has commissioned this series of case studies to benchmark best practices. Ultimately, through these studies, we want to offer countries practical solutions and a coherent policy foundation with which to improve development outcomes through natural resources projects.

Sheila Khama
Director of the African Natural Resources Center

The African Development Bank established the African Natural Resources Center as a non-lending entity to build capacity to manage natural resources. The Center's mandate is to assist African countries to maximize development outcomes from the continent's natural resources. The Center advises governments on natural resources management, policy formulation and implementation to enable them to secure greater social and economic value from resource development. The scope of the mandate covers renewable (fishery, forestry, land and water) and non-renewable (minerals, oil and gas) resources.

The Center supports African governments in performing their custodial obligations by collaborating with regional institutions, private sector, civil society organizations and donors. The Center uses benchmarks and best practices from other countries to increase the capacity of governments.

AGA Malaria and Public-Private Partnerships in Ghana's Health Sector

1. Introduction

This study presents the case of an uncommon corporate initiative, which, according to many observers, could turn into an exemplary nation-wide public-private partnership to tackle a public health threat. Indeed this initiative could have a profound impact not only on human development but also on corporate profitability. The malaria control programme initiated by AngloGold Ashanti (AGA) in Ghana in 2006 aimed at delivering an efficient, cost-effective solution for containing malaria infections in the African countries where the company operates. The AngloGold Ashanti Malaria Control Programme is a study in corporate social responsibility in the fight against malaria, and its toll within communities where a company operates, and the viability of a business entity, including the broader safety of its staff.

With the exception of offshore petroleum, extractive activities in sub-Saharan Africa generally take place in remote areas where tropical diseases are prevalent, placing a debilitating burden on communities and local businesses. In the case of AngloGold Ashanti, 2004 marked a shift towards true development partnership in its engagement both with the host community and with the government of Ghana. In 2004, malaria was recognized as a risk to the company's operations in Africa, prompting a corporate decision to implement an integrated malaria control program.[1]

There have been no shortage of reviews of the program – academic theses, internal reviews by AngloGold, national and international accolades. However, none has highlighted the nexus of corporate social responsibility, public-private partnership and the sharing of benefits resulting from extractives among all stakeholders in a situation where the poor health of the workforce threatened both the overall welfare of the community and the viability of the investment in resource extraction. This was more than corporate philanthropy for better community relations or social license to operate.

2. The Context

2.1 National Malaria Control Programme

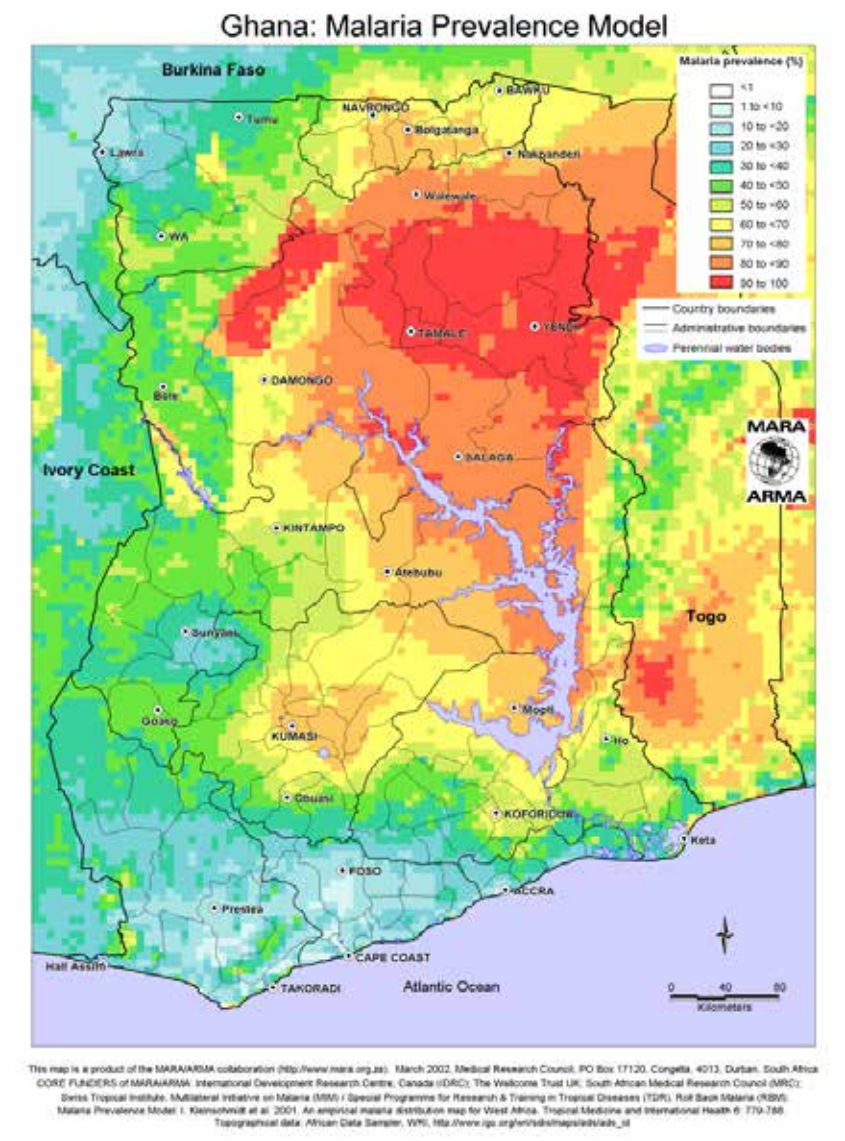
The fight against malaria in Ghana pre-dates the AngloGold Initiative. According to the National Malaria Control Programme (NMCP), malaria control in Ghana began in the 1950s with the aim to reduce the disease burden until it was no longer of public health significance. The government recognized at the outset that control of the deadly disease could not be done by the health sector alone. Effective control required sector coordination involving health, education, local government, environment, science and technology.

Despite government efforts between 1960 and 2000, malaria continued to be one of the leading causes of premature death in the country (see map). The government launched an aggressive Roll Back Malaria (RBM) initiative in 1999 and developed a strategic framework to guide its implementation.[2] RBM aimed at reducing malaria cases and mortality by 50% by 2010. The main strategic pursuits were promoting multiple prevention approaches; improving malaria case management at all levels; encouraging evidence-based research to come up with effective interventions; and improving partnerships at all levels, including both donors and private sector.

[1] Corporate Action on Malaria Control: Best Practices and Interventions, April 2011
[2] Ministry of Health

A year later, the government of Ghana (GoG) committed to more ambitious goals: reduce malaria cases and deaths by 75% by 2015 in line with the attainment of the Millennium Development Goals (MDGs). The government recalibrated its goals and the new objectives with specific targets, including, 80% of the population will sleep under insecticide-treated nets (ITN)s and 90% of all structures in targeted districts will be covered through indoor residual spraying. The key to achieving these objectives included functional partnerships between departments and programmes within the health sector, partnerships with development partners, and functional partnerships with and between the private and informal sectors.[3]

2.2 AngloGold Ashanti (AGA) Malaria Programme



This map is a product of the MARA/ARMA collaboration (http://www.mara.org.za). March 2002. Medical Research Council. PO Box 17120. Congella. 4013. Durban. South Africa
CORE FUNDERS of MARA/ARMA: International Development Research Centre, Canada (IDRC); The Wellcome Trust UK; South African Medical Research Council (MRC);
Swiss Tropical Institute. Multilateral Initiative on Malaria (MIM) / Special Programme for Research & Training in Tropical Diseases (TDR). Roll Back Malaria (RBM).
Malaria Prevalence Model: I. Kleinschmidt et al. 2001. An empirical malaria distribution map for West Africa. Tropical Medicine and International Health 6: 779-788.
Topographical data: African Data Sampler, WRI. http://www.igc.org/en/pdris/maps/pdris/ads_id

[3] National Malaria Control, Programme and Ghana Heath Service
[4] AngloGold Ashanti and the Global Fund partnership presentation, 2013
[5] AGA Country facts sheet, 2012. Contractors include fixed-term contractors, teachers and third party contractors and national service personnel engaged by the mine

AGA, the world's third largest gold producer, has operations in 11 countries with over 70% of its production in Africa.[4] AGA has two wholly-owned and managed operations in Ghana, Obuasi and Iduapriem. As of 2012, the average number of employees at these operations totalled 6,922, of whom 4,796 were permanent employees and 2,126 contractors.[5]

The AGA 2004 Report to Society remarked, "Malaria remains the most significant Public Health threat to AngloGold Ashanti operations in Ghana, Mali, Guinea and Tanzania." In 2004 AGA realised the adverse impact malaria was having on its Ghanaian business operations, workforce and on people in its operational community. Areas around Obuasi were particularly vulnerable because of "galamsay" – small-scale, surface mining (often unregulated). Galamsay provides both a sanctuary for mosquito breeding as well as a threat to malaria vector control intervention. At the community level, health facilities (government hospitals and private health facilities) in Obuasi were seeing an average of 12,009 malaria patients per month, representing 48% of all cases at these facilities. Malaria was one of the top 10 killer diseases around Obuasi, accounting for 22% of deaths (AngloGold Ashanti).

In 2005, the main hospital for the Obuasi Mine (Edwin Cade Hospital) saw an average of 6,800 malaria cases per month, comprising employees, their dependants and private clients. Of these cases, 2,500 were mine employees. The total workforce at the mine at the time was about 8,000. AGA lost on average three days per worker, which represented about 7,500 man shifts per month (31.25% of the mine's workforce). Productivity loss due to patient recovery was also significant.

Medical treatment costs for AGA averaged US$55,500 per month. The business case for the malaria programme was compelling. When Ashanti Goldfields Company (AGC) of Ghana and AngloGold of South Africa merged in 2004/2005, the AngloGold Ashanti Malaria Control Programme (AGAMal) was born. It was initially christened the Obuasi Malaria Control Programme (OMCP) as its operations were limited to Obuasi at the time.

Project objectives

In 2006, AGA launched a precursor of the AGAML programme, the Obuasi Malaria Control Programme (OMCP), which encompassed the Obuasi mine as well as other malaria endemic communities in and around Obuasi. The aim was to reduce the incidence of malaria by 50% and the number of malaria-related lost working days among AGA employees within the first 2 years (AGA, 2004). In addition, the programme looked to reduce the incidence of malaria infections through an integrated control strategy that includes: vector control by indoor spraying (IS), distribution of insecticide-treated nets, killing all larvae in breeding areas (water bodies), environmental management (eg. the use of screens and lifestyle changes), surveillance, monitoring and evaluation/research, insecticide resistance management through insecticide rotation, information, education, community communication, early effective diagnosis and treatment.

Project governance and financing

OMCP is governed and managed by its board with day-to-day support from Obuasi mine managers. The project has a small administrative team. The mine is responsible for daily activities, providing support such as financial control, logistic management, laboratory facilities and strategic direction. Since its inception the project has been funded by AGA. The mine pays staff salaries and provides office space and funds for all operations of the malaria control program. The scaling up of the project outside AGA's operating environment was made possible by direct support from The Global Fund to Fight AIDS, Tuberculosis and Malaria. AGA and its suppliers provided complementary human resource and organizational support.

The AGA partnership with The Global Fund and other stakeholders, in particular the GoG, was seen as a major shift in malaria control in Ghana. The initial investment by AGA in setting up the OMCP was US$1.7 million. Thereafter, AGA has invested approximately US$1.5 million into the programme annually since 2008. Based on endorsements from the Ghana Country Coordinating Mechanism (CCM), AGA received a US$138 million Global Fund grant for the expansion of the Obuasi programme. The AGA malaria program was identified by The Global Fund and other organizations as an ideal partner when the Global Fund introduced its Dual Track Financing Mechanism as a condition precedent for financial support to countries. The partners specifically insisted on AGA's central role in providing managerial support and program oversight.

Project approach and strategy for malaria control

Project implementation was preceded by a background study on the behavior cycle of the mosquito parasite. The findings informed the main operational strategy: indoor residual spraying (IRS). Operationally, the project owes its success to strategy, consistently meeting spray targets, monitoring and evaluation, and building a strong database and information system on the communities in which the mine operates. The AGAMAL project engages communities through the media and regular home visits to educate people about malaria control schemes and models. Its main operational strategy has since focused on malaria prevention rather than on treatment, although it has an efficient system for testing, treating and tracking as well.

Collaborations and partnerships

The outcome of discussions between AGA, GoG and The Global Fund was a broadening of the program scope and footprint beyond the company's operations and financial contribution. AGAMAL has since worked closely with relevant public institutions, namely the Ghana Health Service (GHS), the Environmental Protection Agency (EPA), Ministry of Local Government, and other third parties, including the Global Fund. The Ministry of Health provides policy direction and ensures that the project aligns with GoG's malaria programme. Over the years the GHS has provided warehouse facilities for the project, in cooperation with the Ministry of Local Government and the relevant local authorities, in this case the Municipality of Obuasi and the relevant District Assemblies around Obuasi. These Government institutions have also provided office facilities where available.

The EPA is a regulator, which ensures that the chemicals used to kill larvae are environmentally friendly. The Global Fund provided about US$130 million to scale the program to a total of 40 districts in Ghana. That support is contingent upon ensuring that the project's policies and strategies align with national policies on malaria control. The Ghana Chamber of Mines has also played a coordinating role in the project. Without taking anything away from AngloGold, clearly its collaboration with public institutions and local community leaders has been crucial to the project's success.

3. Quantitative Impact

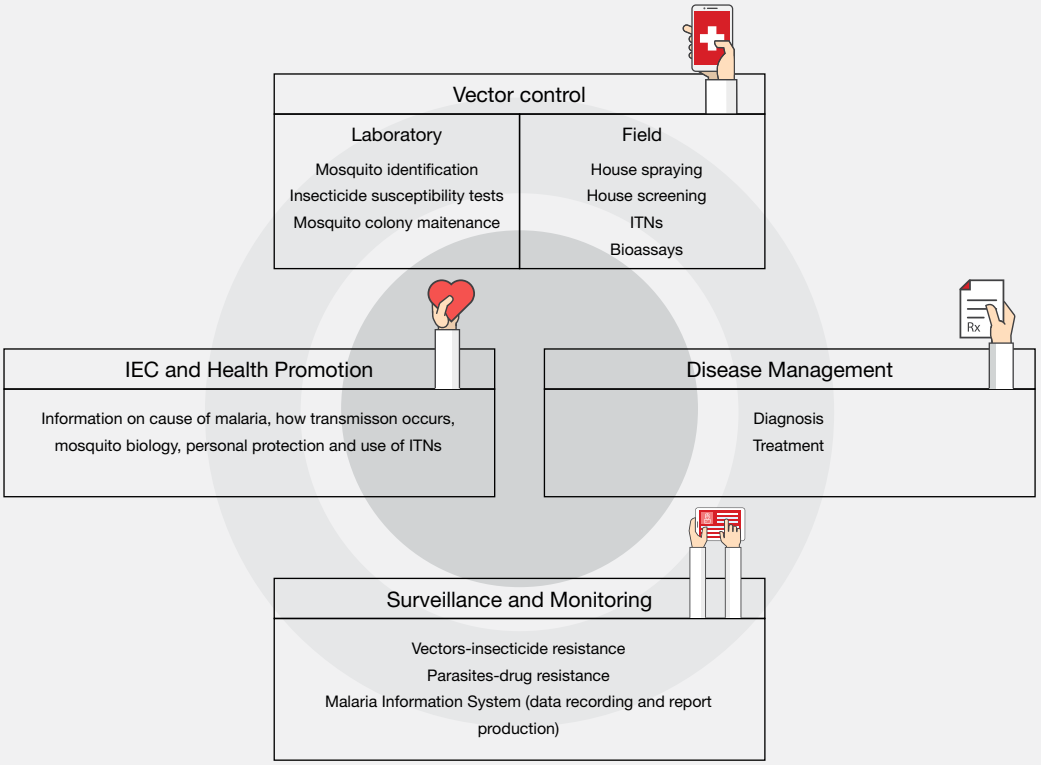
AGAMAL's impact has been phenomenal in terms of human development. By 2012, it had reduced malaria cases in the Obuasi mine area by about 75%, well above the 50% target set in 2006. Since project inception there has been a drastic reduction in malaria cases among children under 5 and among pregnant women. The children's ward of the main hospital, which in the past was always near capacity, has seen a considerable decline in admissions. Other notable human development outcomes include reductions in child and infant mortality, improvement in school attendance rates and improvement in school performance. There are many non-mine communities that have also benefited from the project. Finally, through its residual spray program, the initiative employed many people in the districts covered.

3.1 Obuasi Malaria Control Centre

To ensure the programme's success, AGA established the Obuasi Malaria Control Centre (OMCC) at its Obuasi site in April of 2006. The president of the Republic of Ghana opened the centre, signifying their partnership in the project. Although primarily the headquarters for the Obuasi programme, OMCC would also serve as a training centre for AGA malaria projects at other mines. Indeed, the centre has become a valuable asset in the fight against malaria in Africa. It is also serves as a satellite research centre for academia, the public sector and other agencies.

The centre comprises offices, a planning and strategy center, malaria information centre, training facilities (lecture rooms and a swathe walls for training on the use of the compression pump), shower rooms, storage and maintenance/workshop facilities, and a modern insectary and laboratory. The centre is funded exclusively by AGA and serves

as the backbone to the malaria control programme's activities. To this end, research and program monitoring has led to the development of proprietary knowledge and has become a valuable source of data for clinical and other scientific research. The resulting information has contributed to epidemiological policy decisions, environmental debate and policies on drugs and insecticides for malaria containment beyond Ghana and Africa.



3.2 Obuasi Indoor Residual Spraying

IRS is the application of insecticide on the inner walls of houses (mainly in sleeping spaces) where the malaria mosquito (or "vector") rests after taking blood meals. The long-lasting insecticide can be effective for three to nine months and helps reduce the lifespan of the insects.[6] The AGAMAL programme focuses on vector control mainly through IRS, backed by the other programme activities (see figure above).

The first round of IRS began in Obuasi in 2006 with 96% coverage of targeted structures (approximately 36,000 households). The program engaged targeted communities through an intensive Information Education and Communication campaign on malaria and prevention, using media advertisements, talk shows (especially on FM radio), community committees, home visits and public banners, among others. This strategy helped create community acceptance of the IRS strategy in the Obuasi municipality, towns and surrounding communities. The community vector control and education activities initially recruited 128 local people to ensure wider outreach. The Nhyieso community was particularly receptive to the programme after their chief and leadership intensified advocacy.

[6] Ghana Health Service 2011 Annual Report

IRS happened twice a year from 2005 to 2014 in a 5-month spraying cycle. This was due to the residual efficacy of the insecticide. In 2015 only one IRS was needed thanks to a new, longer-lasting insecticide. According to the 2012 AGA Obuasi reports, IRS is both capital and labour-intensive. It therefore requires adequate preparation, logistics and funding. The 2012 desk review revealed that between 2005 and 2009, the AGAMAL program had sprayed over 139,000 structures (i.e. 36,000 houses) in Obuasi municipal town, villages, mine housing estates and mine offices and buildings (Steve Knowles, 2012). Table 1 indicates the IRS logistical requirements for that programme period.

Table 1
IRS Requirements Per Year Spray Round

Logistics per spray round
18,560 Kg of insecticide
116 Spray men
60 Pumps
8 Vehicles
9 Trailers + Equipment

Source: AGA, 2009

Table 2 shows that, since 2013, an average 137,027 structures or rooms are sprayed annually in Obuasi. This constitutes 89% coverage of the locality annually.

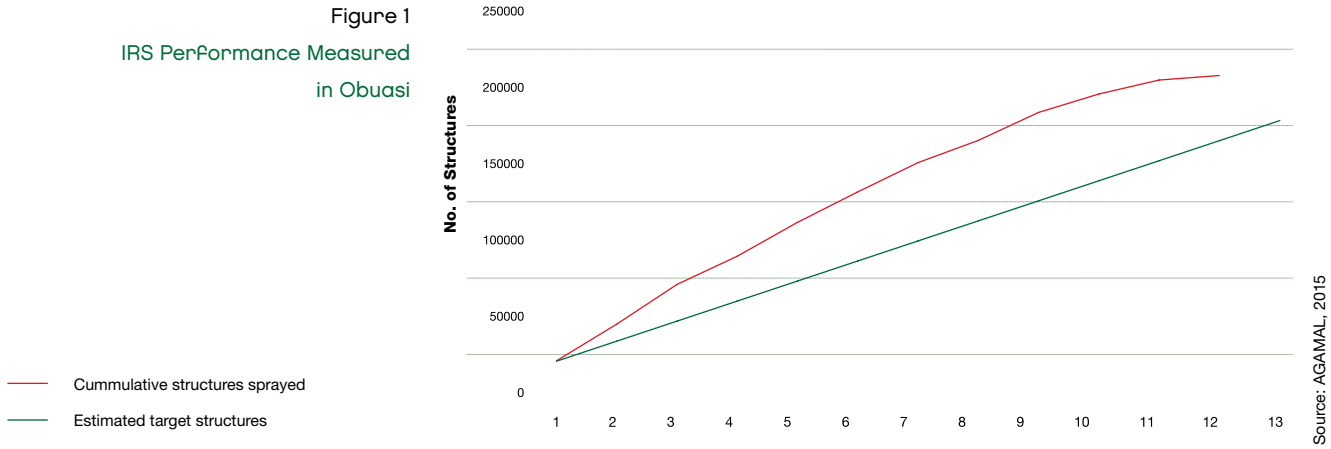
Table 2
IRS Operations Summary (2012-2015)

Year/Global Fund Rounds	No. structure/ rooms targeted	No. structures/ rooms actually sprayed	No. Stands/ houses actually sprayed	% coverage	Population Covered
2012 - GF01	n/a	114,089	9,196	n/a	n/a
2012 - GF02	n/a	93,505	8,272	n/a	n/a
2013 - GF03	144,140	100,995	9,167	70.07	n/a
2013 - GF04	144,140	137,027	12,061	95.07	n/a
2014 - GF05	158,119	145,000	11,760	91.70	n/a
2014 - GF06			No spraying		
2015 - GF07	172,697	175,055	14,340	101.37	122,720

Source: AGAMAL, 2015

The AGA Mal Laboratory

Figure 1
IRS Performance Measured in Obuasi



Source: AGAMAL, 2015

Box 1
National Partnerships (PPP)

AGA's programme is a partnership with the Ghana Health Service, the National Malaria Control Programme and local government through the municipal assembly. The AGA programme necessarily conforms to the national malaria strategy. The success of the partnership has made the "Obuasi model" a key component of the national plan.

The municipal health directorate facilitates most AGAMAL activities and the municipal health service has offered technical services such as sentinel site selection and planning. The directorate also assists the project by providing personnel. The main operational strategy of the municipal health directorate is to use insecticide-treated nets while AGAMAL employs IRS, a complementary operational strategy.

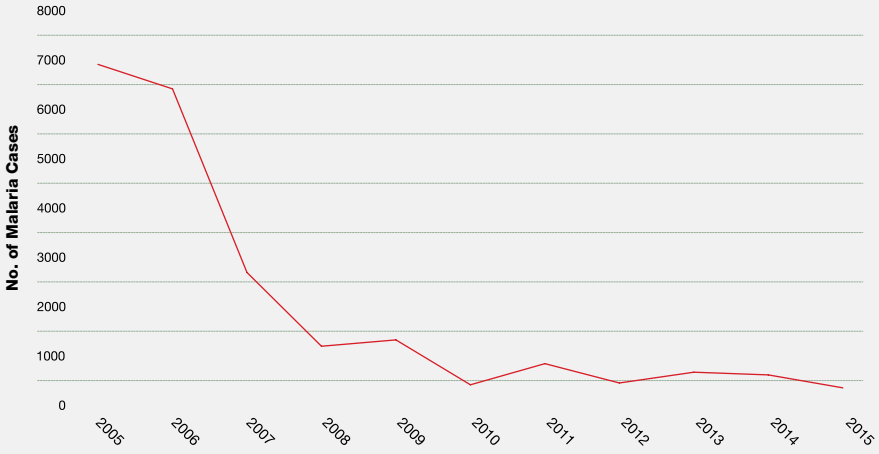
3.3 Quantitative Impact Evaluation

The quantitative impact of the project is evaluated using select indicators outlined in the "Roll Back Malaria" handbook.[7] AGAMAL operated solely in the Obuasi Municipality from 2005-2011. All data for that period refer therefore exclusively to the period funded solely by AGA. The Global Fund funding and scaling of the programme went from 2012-2015. The present study focused on AGAMAL activity in the mines and in Obuasi for the time periods indicated in the list below. The impact indicators measured in this study include:

- Number of malaria cases (all-inclusive and employees only) (2005-2015)
- Malaria incidence rate per 100 employees (2011-2015)
- Malaria severity rate (2011-2015)
- Loss days due to malaria (2011-2015)
- Malaria loss time frequency rate (MLTFR)
- Malaria medication cost (2005-2009).

[7] See http://www.rollbackmalaria.org/

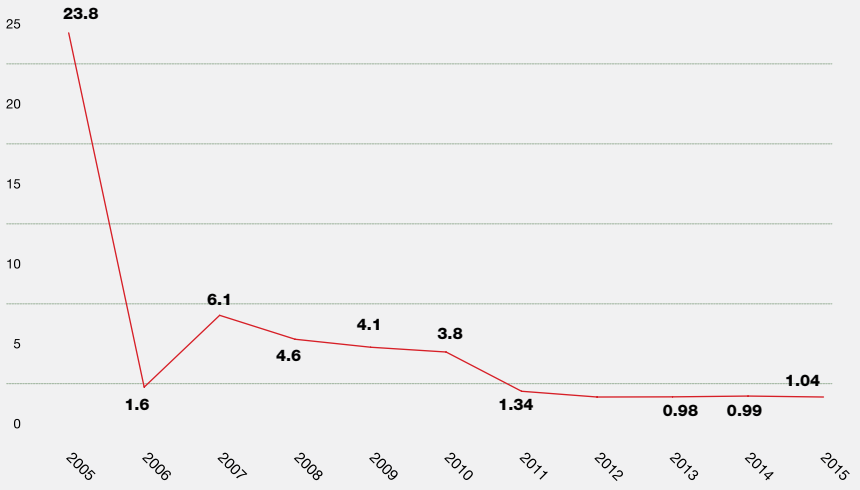
Figure 2
Reported Incidence of Malaria in Edwin Cade Memorial Hospital



Source: AGAMAL, 2015

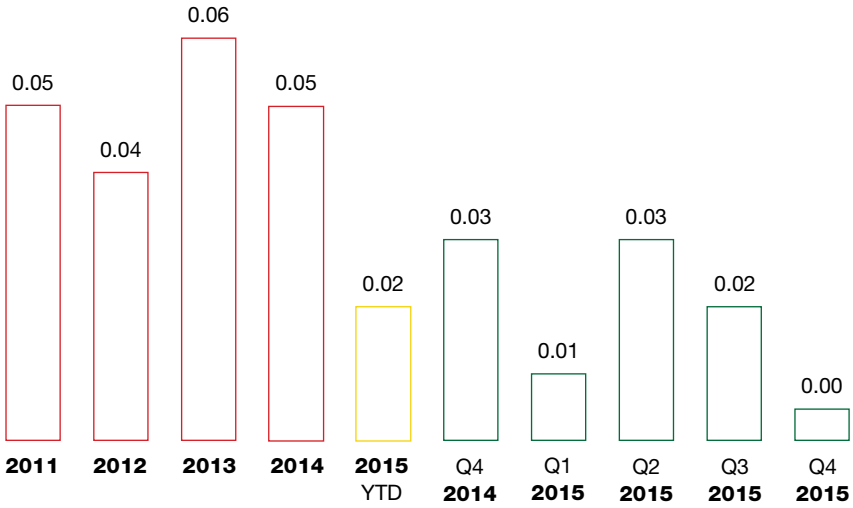
Figures 2 and 3 show the dramatic decline in reported cases over the past decade. The number of reported cases dropped by 163% between 2005 and 2006; between 2006 and 2008, the drop was 162%; and between 2010 and 2014, there was a 451% drop.

Figure 3
Malaria Incidence Rate per 100 Employees



The Malaria incidence rate per 100 employees, i.e. the number of new cases per 100 employees, is an index for measuring productivity at the company level. The incidence rate in 2005 at program inception was high at 23.8. Immediately after the first spray season, the malaria incidence rate per 100 employees was reduced to 1.6. It then remained low (0.96 average) from 2012 through to the first quarter of 2015. It declined further to 0.86 in the last quarter of 2015.

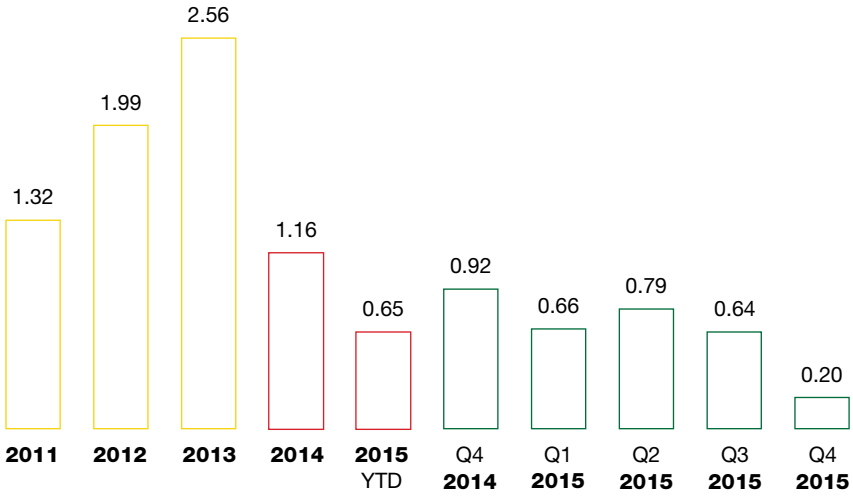
Figure 4
Malaria Loss Time Frequency Rate (MLTFR) (2011-2015)



Source: AGAMAL, 2015

"All-inclusive malaria cases" refers to the number of malaria cases for both the public and AGA employees for 10 years. MLTFR is expressed as the number of malaria cases that have occurred over a given period, divided by a standard number of hours worked, measured as a percentage. It is evident from the diagram above that the rate has declined over time. In fact, the rate was 0.00 in the fourth quarter of 2015.

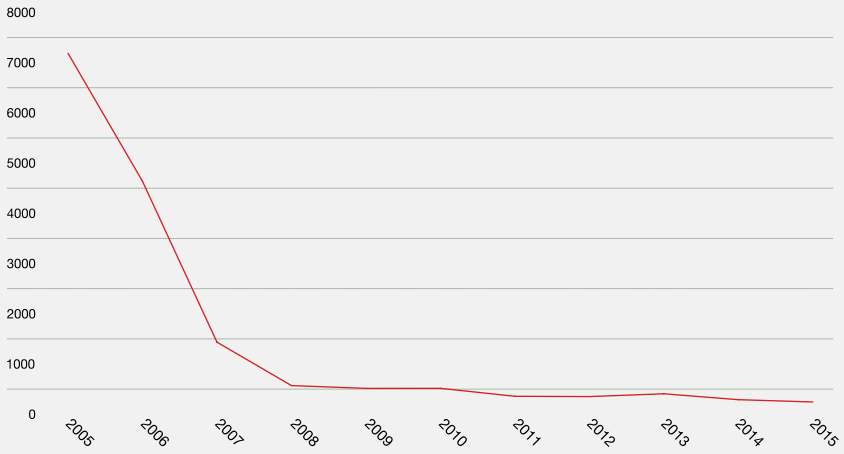
Figure 5
Malaria Severity Rate



Source: AGAMAL, 2015

The "malaria severity rate" is a measure of productivity. It is measured as the amount of time lost due to malaria represented by a standardized figure to indicate the severity of malaria. From Figure 5, it is observed that the highest severity rate (2.56) was reported in 2013. The figure has since declined to as low as 0.20 in the fourth quarter of 2015.

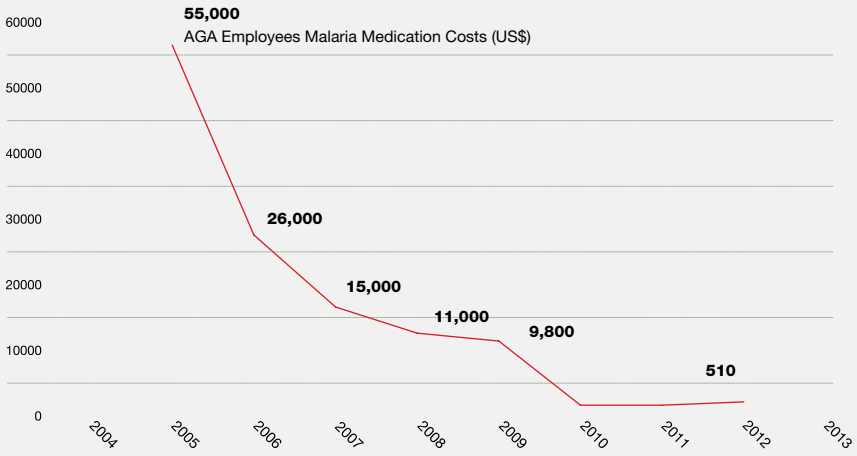
Figure 6
Trend in Average Monthly Lost Days For AGA Employees to Malaria



Source: AngloGold Ashanti annual report 2009; AGAMAL, 2015

The number of "lost days due to malaria" measures the average number of days employees are absent from work due to malaria. The number of lost days due to malaria on average in 2005 was as high as 6,983. In 2008, the number of lost days went down to 338 on average, a significant decline. However, the number of lost days due to malaria after 2008 has remained at an average of 55.

Figure 7
Trend in Average Monthly Malaria Medication Costs to AGA Employees



Source: AGA, 2014

Figure 8
Malaria Cases Reported by AGA Employees: Jan 2011-Sept 2015

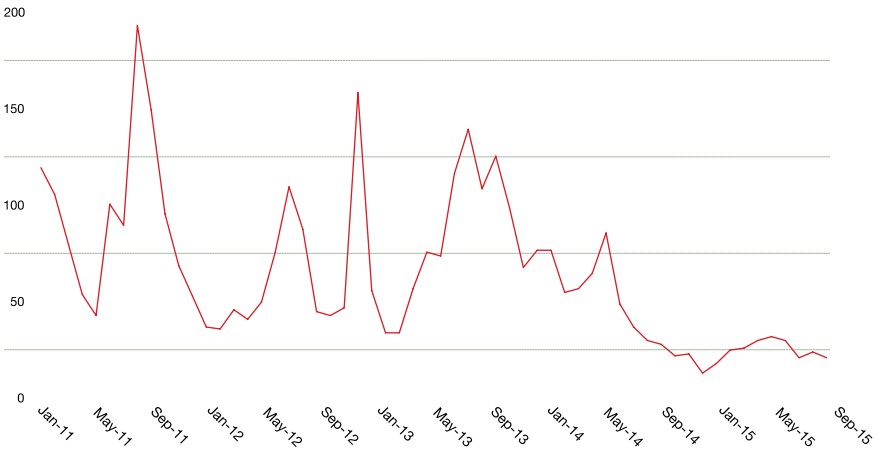


Figure 7 represents the trend in malaria-related medication costs to the company. In 2005 the cost was $55,000, while in 2009, the company spent $9,800 on malaria medication. In 2012, the company only spent $510 on malaria medication. There has therefore been a drastic decline in malaria medication costs in line with the malaria cases reported by AGA employees (including permanent staff, contractors, teachers and national service personnel who work for AGA).

4. Recommendations

- Sustained financial commitment and government support to IRS programmes would reduce malaria cases and increase workforce productivity.
- AGAMAL should strengthen its collaboration with key stakeholders (The Global Fund, GHS, NMCP) for reasons of programme sustainability.
- The GHS malaria control strategy should prioritize the use of IRS to influence GFATM funding to sustain the upscaling of the programme in more districts.
- The M&E systems of the GHS Directorate should be harmonised with AGAMAL M&E.
- GoG should prioritize vector control through IRS and complement it with the current case management strategy to reduce malaria cases significantly.
- According to Steve Knowles, businesses seeking to emulate the AGAMAL programme – at the minimum — must: have a business plan; conduct a cost-benefit anylsis of implementing the programme, show existing costs and savings by implementing programme; seek commitment and partnerships with stakeholders from the highest level of government; show how the programme complements existing national programmes; and seek shareholder acceptance and backing.

5. Lessons for other countries

The malaria control programme, initiated by AGA in Ghana in 2006 and partnering with public sector, aimed at finding and delivering efficient, cost effective solutions to malaria control in Africa. The immediate focus of AGA was health in the environment from which it draws its most needed workforce; the secondary focus was general public safety. The initiative required both a development as well as a business focus. There was a compelling case for both judging from the number of malaria cases reported.

This project is about more than corporate philanthropy, community relations or social license to operate. Corporate profitability and shareholders' return on investment depended on it. The main takeaway is that governments seeking public-private partnerships with companies must focus on projects that have a strong business case for the company as well as a high development impact.

Countries contemplating similar public-private partnerships should consider the following:

Adequate background preparation Project implementation should be preceded by a background study on the behaviour cycle of the vector (the female anopheles mosquito). The findings should inform a company's operations strategy, which should be aligned with the government's strategy.

Good governance The project should be governed and managed by the board and management of the company to ensure good governance – good coordination, accountability and transparency of operations. It should not be outsourced.

Collaborations and partnerships The company should work closely with relevant public institutions and other key third parties, including donors. A government ministry should provide the policy direction and ensure that the project aligns with government priorities and programmes.

Local authority commitment and community engagement The role of local authorities, community leaders and traditional rulers are just as essential, especially if community spaces will be used for the project.

6. Emerging Lessons for Policymakers and Corporates

Commercial imperatives Collaboration and functional partnership mechanisms go beyond intra-government coordination. This collaboration between a private sector company intervention and working government institutions is underlined in part by its business case.

Profitability and social responsibility are often seen as mutually exclusive, but the AGA malaria case demonstrates the contrary.

Financing and sustainability Such projects require huge start-up capital. The projects, at inception, would be funded by companies who would also be responsible for staff salaries, office space and funding all program operations. The scaling up of the project outside the company's operating environment would be made possible by support from the government, donors and the complementary human resource and organizational support of the company and outsource supply companies.

Fiscal vs non-fiscal benefits The AGA malaria project was launched during a significant downturn in the gold market. It expanded during one of the most bearish markets for bullion while continuing to provide the same positive human development outcomes at scale. An important lesson from this is that such public-private partnerships are more resilient, offering citizens more stability than those based on revenue.

Capacity to manage AGA malaria's partners insisted on the company continuing to lead implementation and day-to-day operational oversight. This was in recognition of the important role that efficient management plays in project success.

Narrowing the human impact gap Going directly to the core problem (malaria infection) while avoiding the temptation to target other problems ensured success. This principle is also applicable to education and environmental initiatives, among others.

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