A Mining Health Initiative case study:

First Quantum Mining Limited, Zambia: Lessons in Government Engagement

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FUNDING

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CONSORTIUM

The Mining Health Initiative is implemented by a consortium comprising the following organisations and institutions.

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ACRONYMS

ANC	Antenatal Care
CHAMP	Comprehensive HIV AIDS Management Programme
CSR	Corporate Social Responsibility
DFID	Department for International Development (UK Aid)
DHMT	District Health Management Team
DHO	District Health Office
DHS	Demographic and Health Survey
EITI	Extractive Industry Transparency Initiative
FQM	First Quantum Minerals Limited
GDA	Global Development Alliance
GDP	Gross Domestic Product
IMF	International Monetary Fund
HIV	Human Immunodeficiency Virus
IRS	Indoor Residual Spraying
LLIN	Long-Lasting Insecticide Treated Net
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MPH	Masters of Public Health
NGO	Non Governmental Organisation
NMCP	National Malaria Control Programme
PEPFAR	President's Emergency Plan for AIDS Relief
PHO	Provincial Health Office
PPP	Public-Private Partnership
RTI	Respiratory Tract Infection
STI	Sexually Transmitted Infection
TB	Tuberculosis
TDRC	Tropical Disease Research Centre
UNDP	United Nations Development Programme
VCT	Voluntary Counseling and Testing (for HIV)

GLOSSARY OF TERMS – ORGANISATIONS AND STRUCTURES

First Quantum Minerals Ltd	International mining and metals company, established in 1996.
Kansanshi Mining PLC	A subsidiary company of First Quantume Minerals Ltd., owning 80 per cent of the Kansanshi mine in Solwezi district. Kansanshi Mining PLC is responsible for the processing of the mined materials. A subsidiary of Zambia Consolidated Copper Mines (ZCCM) owns the remaining 20 per cent.
Kansanshi Foundation	Foundation established by FQM in 2006 to oversee and fund corporate social responsibility (CSR) programmes in Solwezi area- largely concerned with infrastructure and economic development projects.
First Quantum Health	Term used in company literature for the team dedicated to planning, designing and overseeing all health -related aspects of inside and outside the fence programming, including health-related CSR programmes.
Trident project	Five exploration licences for North Western Province, owned by FQM, three of which are currently under development.

EXECUTIVE SUMMARY

First Quantum Minerals Ltd. (FQM) is an international mining company with operations worldwide. The case study examines the health programmes run at one of its mine sites in Northern Province, Zambia, Kansanshi mine, run by Kansanshi Mining PLC - a subsidiary of FQM responsible for processing the raw materials mined at the Kansanshi mine. FQM operates other concessions in Zambia, and this case study focuses on the Kansanshi mine unless otherwise noted – located outside of Solwezi town, Northern Province.

The health programmes at this site were conceived in response to FQM's interest in protecting the health and safety of its own personnel and, in line with FQM's social goal, within its corporate social responsibility mandate, to better the health of the communities on which its mines impact. The strategic goal of improving the health of the surrounding communities, in order to improve the health and productivity of the workforce drawn from these communities, is also a clear driver of FQM's desire to implement health programmes. The areas of support within the general scope of health have developed organically, with formal baseline surveys and needs assessments only recently incorporated into programme design phases. Programmes have historically emanated from identified needs in the workforce, such as the human immunodeficiency virus (HIV and malaria, and a solid commitment to enabling the implementation of national health strategies, notably but not limited to the national malaria control programme (NMCP).

Inside the fence, FQM and Kansanshi Mining PLC provide employees with malaria prevention, access to treatment, opt-in access to a primary health care clinic with referral capacity, and HIV/Aids prevention awareness, education and peer support. Outside the fence, FQM and Kansanshi have supported a number of infrastructure projects related to clinic and hospital rehabilitation and construction, and operate regular voluntary counselling and testing (VCT) for HIV and malaria testing and treatment referrals through a mobile clinic programme operated in partnership with the local Zambian non-governmental organisation (NGO), Comprehensive HIV AIDS Management Programme (CHAMP). Some good practices were identified during the fieldwork for this case study. These are:

- Lessons from the initial years of programming are being carefully addressed:
    - New operational areas will have health assessments with baseline information to ensure interventions are appropriately targeted and impact measurement is accurate.
    - Partnerships with local health authorities are being fostered from the outset in new operational areas.
    - Current programmes have evolved and expanded with the identification of gaps in coordination and capacities to include:
        - Closer liaising with the provincial and district health authorities

- Working within the framework of the Zambian Ministry of Health (MoH) policy e.g. on HIV in the workplace and MoH guidelines for the treatment of diseases and for building and equipping health facilities
- Filling MoH-identified gaps in a collaborative manner, in coordination with other large mining and agricultural companies, which ensures the government retains overall control over the implementation of health plan and dependency issues are minimized.
- Striving to move from independent programming to direct support to public infrastructure and systems.

- A mutually beneficial partnership between FQM and the NMCP in malaria control has demonstrated what achievements are possible when the strengths of each partner are carefully targeted to fill gaps in such a manner as to move the issue of public health, such as malaria control, forward in an objectively useful way for the national programme.

Overall, the partnerships on the FQM health interventions underlined the importance of quality and regular communication channels between stakeholders, the role of human resources management in terms of having the right people in the right roles to coordinate and push issues appropriately and consistently, and understanding the complexity and nuances of a health public-private partnership (PPP) and the challenges posed in coordinating with government in the context in which FQM finds itself – locally, provincially and nationally.

1. BACKGROUND AND PURPOSE OF THE CASE STUDY

The Mining Health Initiative has been commissioned by the HANSHEP group to build understanding of, and foster agreement on standards for, mining industry PPPs which work to strengthen health services for underserved populations. The Mining Health Initiative will lead to enhanced understanding of on-going mining health PPPs and a set of good practice documentation of mining health programmes for wide dissemination and application.

The Mining Health Initiative had conducted a number of case studies of health programmes run by mining companies in sub-Saharan Africa. The purpose of the case studies is to document the reach and impact that has been achieved through such projects and examine the best ways in which these programmes can overcome practical challenges and achieve maximum effectiveness both in terms of costs and efficacy. The case studies have both descriptive and analytical components (Figure 1).

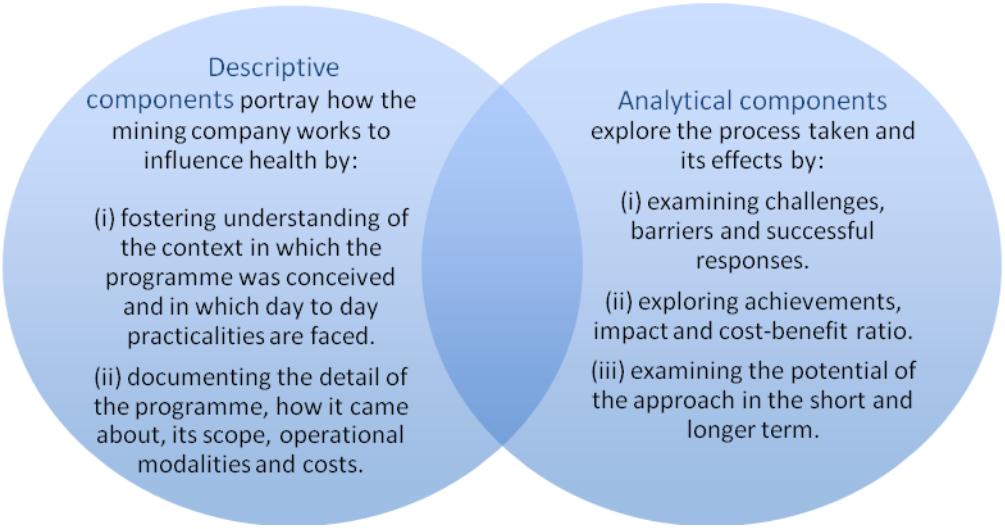

Figure 1. Objectives of the descriptive and analytical components of the case studies

There are a number of key audiences for the case studies with varying intended impacts:

- **The Mining Health Initiative and HANSHEP.** *Intended impact:* improved understanding of the scope, potential and most effective approaches for mining health PPPs; to inform the Mining Health Initiative's Phase III.
- **The donor community.** *Intended impact:* increased awareness of the potential for mining health PPPs as approaches to improving the health of hard to reach populations.
- **The mining sector.** *Intended impact*: increased awareness of the range of potential approaches and the opportunities for increasing impact and cost-effectiveness.
- **Other health sector organisations.** *Intended impact*: increased awareness of the opportunities for mining PPPs and of how best such partnerships may work.

2. CASE STUDY METHODOLOGY

This case study was conducted by a team of two international public health experts. Data collection was undertaken through i) review of documents, ii) review of health data including those available from national and local health authorities, and from the company clinic, iii) key informant interviews with company and partner and iv) focus group discussions with community representatives. Due to the large network of health interventions of FQM in Zambia at multiple sites, for practical purposes only those activities concerning the Kansanshi mine site, in Solwezi district, have been covered by the case study, unless otherwise noted. Details are shown in Annex A.

3. SITUATION ANALYSIS

3.1. Company profile

Zambia has some of the largest copper and cobalt deposits in the world, and was among the top global copper producers in the 1970s. According to the Extractive Industries Transparency Initiative (EITI)[1] the mines were nationalized in the early 1970s and annual production levels began falling. Decades of underinvestment and ageing infrastructure steadily increased production costs beyond those of most global competitors, making the profitability of Zambian mines vulnerable to the international slump in base metal prices that began in the late 1990s. Since that time the government has permitted private investment. International companies have subsequently undertaken massive rehabilitation works to increase their copper output. Foreign investment in the sector has totalled around US$4bn since 2000 and the government is continuing to award exploration licenses[2].

Figure 2 Map of Zambia (Source: OCHA/Reliefweb)

Zambia is a candidate country of the EITI. On 30 March 2012, the country launched its 2009 EITI Report, disclosing the payments from 28 mining companies to the government in 2009. The government received more than US$500 million from the mining sector. The reported revenue was up almost 50% from the 2008 report, when 16 companies reported their payments[3].

[1] The EITI is a global initiative established in 2002. It is a process by which government revenues generated by extractive industries are published in independently verified reports to improve transparency and accountability in countries rich in oil, gas and minerals resources.
[2] www.eiti.org/Zambia
[3] www.eiti.org/Zambia

FQM is listed as a supporting company of the EITI in Zambia[4]. The company was established in 1996 to develop the Bwana Mkubwa mine in the Copperbelt province, Zambia, which stopped operations in 2010. Since 1996 FQM has grown into a significant international mining and metals company with operations and projects in Zambia, Mauritania, Peru, Australia and Finland[5]. In 2011 it was estimated that Kansanshi Mining PLC contributed to 8 per cent of the total Zambian economy and 70% of all the corporate taxes paid in the country were attributable to Kansanshi Mining PLC. As of May 2012 an estimated US$1.5m is paid daily in taxes and in addition Kansanshi currently pays local council rates to a total of about US$2m per annum.

FQM acquired one of the oldest mines in Zambia, Kansanshi mine in Solwezi, North Western province in 2001. Construction of a new open pit Kansanshi mine close by began in 2003 and produced its first copper cathode in 2005. It has been estimated that the company produces 37 per cent of copper in the country. Kansanshi Mining PLC has created about 8,000 jobs for local people and contractors, many of them from the surrounding Solwezi district. In addition FQM employs about 1,800 people. The anticipated life of the mine is 25 years[6]. It is the mine and surrounding communities in Solwezi district that are the focus of this case study. The mine is about 8km from the town of Solwezi and Kansanshi Mining PLC runs an hourly bus service to and from the town where the majority of employees live. Some employees live on the Kansanshi golf estate, an area of scrubland completely transformed by FQM. The Kansanshi club on the estate is open to members of the public on payment of a subscription. It has a number of amenities such as gym, swimming pool, tennis courts, golf course and restaurant. There are also impala and zebra on the site. There is also a section of the total land area of the mine that has been designated a wildlife area and has a variety of animals including impala, zebra and giraffe.

More recently in 2010 the Trident project was acquired by FQM. Trident comprises five exploration licences in the North Western province, about 90kms from Solwezi. Work on the Trident environmental and social impact assessment was completed in December 2011. The five licences and environmental approval were subsequently granted, designating Trident a green field site[7] covering an area of 950sq.km[8]. In health there a conscious effort to apply lessons learned from Kansanshi on the Trident project e.g. doing a health assessment to get baseline information, joint planning with the local health authorities before starting implementation and the need to manage misinformation.

First Quantum has aligned itself with several international charters and sets of principles including the Universal Declaration of Human Rights and the International Labour Organisation's Declaration of Fundamental Principles and Rights at Work. The company has a CSR strategy designed to ensure compliance with the national laws of each country FQM is working in[9]. The focus of CSR is in five areas,

[4] www.eiti.org/Zambia
[5] Sustainability report 2011, First Quantum Minerals Ltd. (page 3)
[6] Sustainability report 2011, First Quantum Minerals Ltd (page 24)
[7] A green field site is one where no mining has previously taken place. This is in contrast to a brown field site which is one where there has already been some mining
[8] Sustainability report 2011, First Quantum Minerals Ltd (page 30)
[9] Sustainability report 2011, First Quantum Minerals Ltd. (page 7)

governance, economic, environment, social and labour. As of 2011 FQM spent US$8m annually worldwide on CSR initiatives.

The Kansanshi Foundation was established by FQM in 2006. It mainly focussed on support for infrastructure projects in the Solwezi community that were decided by the Foundation/FQM Board with little or no consultation with the communities it was working with. The Foundation was dissolved due to the world wide economic recession in 2009. It was revived in 2010 and is viewed as a part of the company's CSR response for the Solwezi area.

3.2. Demographic profile

The population of the Republic of Zambia and of the North Western Province, Solwezi district and Solwezi town can be seen in the table below which compares the 2000 census results with the preliminary figures from the 2010 census. As Solwezi is the capital and the only sizeable town in the province it can be seen that Solwezi district is predominately a rural one. North Western Province is increasingly referred to as the 'new Copperbelt', the old Copperbelt being nearby Copperbelt Province.

Table 1. Zambia census population numbers, 2000 and 2010

Area	2000	2010*
Zambia	10,285,000	13,046,000
North Western Province	583,350	706,462
Solwezi district	203,797	239,051
Solwezi town	38,121	45,000

*Preliminary numbers from the 2010 census. Source: Central Statistical Office, Lusaka, Zambia

Development status

Zambia is classified as lower middle-income country by the World Bank. In 2010 the gross domestic product (GDP) was US$ 1221, up from US$845 in 1998. The gross national income in 2010 was US$ 1079, an increase from US$791 in 1998. The unemployment rate in 2009 was 15% (6% rural and 30% urban)[10].

Extreme poverty has been declining but in 2011 the International Monetary Fund (IMF) estimated that the rate of change would be too slow to meet the Millennium Development Goal (MDG) target of 29% by 2015. Extreme poverty is also much higher in rural areas at 67% compared to 20% in urban areas. However, the poverty gap ratio declined from 62.2% in 1991 to 34% in 2006, indicating that the severity of poverty declined sharply, and providing evidence that with the right policies and investments the incidence of poverty can fall fairly quickly[11].

[10] IMF Country Report NO.11/197, July 2011
[11] Millennium Development Goals Progress Report 2011, Ministry of Finance and National Planning and UNDP www.undp.org.zm

Current work on poverty reduction falls with the framework of the 6th national development plan[12]. The plan states that 'the challenge for the country is to improve the quality of life for the majority of the population which has remained low especially in rural areas.' The plan therefore focuses on development strategies that address poverty by ensuring that minimum requirements including provision of health, education, water and sanitation and access roads are in place. According to a paper given at a 'Mining Watch' workshop in 2008[13] revenue generated from the mining sector could be used to fund poverty reduction programmes. However, government does not have a system where revenue generated in taxes and royalties from the mines is shared between the central government and local mining communities. All the money received goes to the national Treasury and is allocated by Parliament according to budgetary ceilings, mostly related to provincial population figures. So, North Western province with its relatively small population sees little return from its copper wealth. Another paper at the workshop highlighted that 'the matter of how to channel revenues back to the affected regions and communities had to be taken up by civil society as a high-policy issue'[14].

Nationally, the net enrolment of children in primary education increased from 80% in 1990 to 102% in 2009, supported by the increased construction of schools, the removal of school fees in 2002 and the adoption of free basic education and re- entry policies. Such policies resulted in an increase of 27.7% in primary school completion rates, from 64% in 1990 to 91.7% in 2009. The primary education MDG target of 100% has been attained. In the 2011 MDG progress report it is reported that the main challenges are adult literacy, which declined from 79% in 1990 to 70% in 2004, and the low completion rate in secondary school. The Ministry of Finance and National Planning and United Nations Development Program (UNDP) have stated that the emphasis needs to be on the quality of education, achieving higher completion rates for girls in secondary education and improving access to post-secondary education and skills training[15].

Transport access and community infrastructure

There is one main road in Solwezi with access to Kansanshi mine on a paved road just off the main road. Most feeder roads in the district are gravel and very dusty in the dry season. Many of the existing communities around the mine lack basic services and infrastructure, such as access to clean water and proper sanitation.

FQM is constructing a model community, Kabataka Hills, in Solwezi, with 5,000 housing units (initially) open to employees of the mine and the general community. It is anticipated that this new housing development may contribute to a reduction in waterborne diseases in the community. In addition, the new homeowners will own the title to the land where each home is built, contributing to a consolidation of land tenure security for smallholders.

[12] Sixth National Development Plan 2011-2015, Government of Zambia

[13] Behind the economic figures: large scale mining and rural poverty reduction in Zambia. The case of Kansanshi mine in Solwezi by Kingsley H Cheelo. First North Western Mining Watch, Mining Watch, Caritas Solwezi and Civil Society for Poverty Reduction, Published by the Extractive Industry Program, Catholic Diocese of Solwezi, 2009

[14] The new and old Copperbelt: Some points for reflection by Prof John Lungu in Mining Watch 2008, Caritas Solwezi and Civil Society for Poverty Reduction, Published by the Extractive Industry Program, Catholic Diocese of Solwezi, 2009

[15] Millennium Development Goals Progress Report 2011, Ministry of Finance and National Planning and UNDP www.undp.org.zm

3.3. Health status

Table 2 shows progress and current status on some key health indicators at national and provincial level. The trend indicates that the results from a repeat demographic and health survey (DHS) later this year, 2012, will show a marked improvement towards achieving the targets.

Table 2. Zambia: Selected health MDG indicators

Indicator	National 2001/2	National 2007	North Western province 2007	MDG targets
Under 5 mortality rate, per 1,000 live births	168	119	108	63
Infant mortality rate, per 1,000 live births	95	70	65	36
Maternal mortality ratio, per 100,000 live births	729	591	-	162
HIV prevalence in adults aged 15-49 years (%)	16.1	14.3	6.9	-
TB cure rate (%)	-	86		85
TB case detection rate (%)	-	404		70
Malaria incidence rate, per 1,000 population	388	-	-	<121

Source: DHS data reported in the National Health Strategic Plan 2011 – 2015, Ministry of Health, Zambia

When comparing some of the national and North Western province 2007 DHS data there is some suggestion that the health status of the Provincial population is better than the national average; the under 5 and infant mortality rates are both better in NW province. Surprisingly, given the levels of migration and behavioural risks associated with mine workers, the HIV prevalence in adults aged 15-49 years was only 6.9% for the province compared with 14.3% nationwide

As is common throughout sub-Saharan Africa, respiratory tract infections (RTI), diarroheal diseases and malaria are among the most common causes of illness in children under five in both NW Province and Solwezi district, reported as the top three causes of outpatient attendance. Despite a reported[16] immunization coverage of 103% for measles in the province, measles is among the top ten reasons for admissions for of children under 5 in Solwezi district. Severe malnutrition is reported at the leading cause of death in under fives both for the NW Province and Solwezi district. More data on disease mortality and morbidity for Solwezi district and North Western province are given in Annex B.

3.4. Health system: structure, functionality and accessibility

The structure of the national health system in North Western province is similar to other provinces in the country. There is a provincial medical office in Solwezi. Solwezi district has a district health management team headed by a district medical officer, also based in Solwezi town. Both the provincial and districts health offices are working within the framework of the MoH national level mission, goal and strategy[17]. Since 2010/2011 all health care and public health interventions are free in the public sector in the country. Each health facility is instead given a monthly grant to cover costs.

[16] MoH Solwezi district health management team, annual report 2011
[17] National Health Strategic Plan 2011 – 2015, Ministry of Health, Zambia

In total in the province in 2011 there were 167 private, mission and government health facilities. In Solwezi district there are 52 health facilities in the public sector of which 50 are health centres and 2 are health posts – there is no district hospital per se, though Solwezi General Hospital functions as a district and provincial referral hospital. There are also a few private for profit health facilities in the district.

The Kansanshi Clinic, constructed and operated by FQM, is located between Solwezi town and the Kansanshi mine, and is open on an opt-in basis to all employees and their immediate families at a monthly premium rate deducted from salaries, which amounts to less than the monthly health allowance which makes up part of employees' pay.

About 100km from Solwezi, the Chinese and Zambian governments have partnered to build a hospital, near the Lumwana mine operated by Barrick Gold Corp. The design of the hospital has followed MoH guidelines except that it will be larger than a usual district hospital. The intention being to provide comprehensive, almost tertiary level services so that fewer referrals have to be made to Ndola or Lusaka. The hospital is due to open sometime later in 2012.

Functionality and access

A health post has a catchment population of less than 1,000 and a health centre of more than 1,000 people. A health centre should have, as a minimum, 4 trained staff comprising a clinical officer, nurse, midwife and an environmental health officer. But it is known that many health centres do not have a full complement of staff. Three of the 52 health centres have a clinic assistant instead of one of the 4 categories of staff listed earlier. This is because the health facilities used to be run by the Zambia Flying Doctor Service who trained such people. But the category is no longer recognised by the MoH.

On average access to any one of the facilities is estimated to be within 8km.

Of the 52 health facilities located in the district, the furthest is about 300km from Solwezi and 4 are in Solwezi town itself. At the time of the study, if people went directly to the Solwezi General Hospital without referral from a health centre or health post they had to pay a bypass fee.

3.5. Stakeholders and other local projects

The 2011 annual report of the provincial medical office, Solwezi gives a table showing 'stakeholders and other health providers' in North Western province. Neither FQM nor Kansanshi feature in the list[18] but they do feature in the current 3 year action plan[19] by the district health management team (DHMT). See annex C for the list of stakeholders and their focus of work as given in the action plan.

[18] MoH Provincial Medical Office 2011 Annual Report. The Provincial Medical Office, North Western Province, Solwezi (source of the table is given in the report as the 2010 Annual North West Province Report.)
[19] MOH, SOLWEZI DISTRICT HEALTH MANAGEMENT TEAM ACTION PLAN 2011-2013

3.6. MOH strategic priorities

The 2011-2015 national health strategic plan divides the national health priorities into two areas, public health and the health system[20]. Priorities for 2011 for the North Western Province can be found in its' annual report for health[21]. The Solwezi district health management team annual report for 2011 does not give any priorities. These are to be found in the 3 year Solwezi District Health Management Team Action Plan[22]. The priorities of the MoH at the 3 levels of the health system can be seen in the table below.

The MoH priorities at the 3 levels of the health system are not directly comparable as they have different time frames, 5 years for the national level, one year for the provincial level and for 3 years at the district level. However, they do usefully indicate what is important to each level of the system.

Box 1. MoH health priorities at national, provincial and district levels

National MoH priorities 2011-15	North Western province priorities 2011	Solwezi district health priorities 2011-2013
Public Health Priorities • **Primary health care services** • **Maternal, neonatal and child health** • **Communicable diseases, especially malaria, HIV and AIDS, STIs and TB** • **Non-communicable diseases** • **Epidemics control and public health surveillance** • **Environmental health and food safety** • **Health service referral systems** • **Health promotion and education** **Health System Priorities** • **Human resources for health** • **Essential drugs and medical supplies** • **Infrastructure and Equipment** • **Health information** • **Health care financing** • **Health systems**	**Public health priorities** • Basic health care package • Integrated reproductive health • Child health, and nutrition • HIV and AIDS, malaria, TB • Epidemic control and public health • Environmental health and food safety **Other health priorities** • Human resources • Essential drugs and supplies • Infrastructure and equipment • Health systems strengthening and governance	Malaria control and prevention HIV/AIDS/STI Child health and nutrition Environmental health and food safety Tuberculosis Integrated reproductive health Development and rehabilitation of infrastructure and transport, Procurement of medical/non-medical equipment Carrying out supportive supervision quarterly to all the rural health facilities **Other priorities** include: Maintenance of cold chain equipment in all the health facilities Health management information system Monitoring and evaluation Quality assurance Research and financial management Top ten diseases (Top 10 causes of morbidity (all ages), causes of mortality (all ages), causes of morbidity (under five) and causes of mortality) **The plan will also address:** Environmental health food safety issues Recruitment of staff

[20] National Health Strategic Plan 2011 – 2015, Ministry of Health, Zambia (section 1.3.2)
[21] MoH, Provincial Medical Office 2011 Annual Report, Solwezi, North Western Province (page 7)
[22] MOH, SOLWEZI DISTRICT HEALTH MANAGEMENT TEAM ACTION PLAN 2011-2013

governance	Procurement of emergency drugs Laboratory supplies Categorized data on the top 10 diseases in the district

The above list of priorities is so comprehensive at each level of the health system that it would be difficult for a stakeholder not to be able to fit in the plan, particularly at Solwezi district level. So, as the discussion goes on in section 4 of this document, the issue will be less *whether* the health programming at Kansanshi mine is in line with public priorities, but more how the alignment works and what strategic or longer term benefits, if any, the public partner draws from the relationship.

4. PROGRAMME CHARACTERISTICS

4.1. Conception process

According to the FQM 2011 sustainability report[23] 'The overall objective of First Quantum's socio-economic development programmes and projects is to improve the quality of life of its' employees, their families and the immediate communities. This is pursued by:

- Improving health care through the provision of health facilities and service providers
- Improving infrastructure and basic services in communities such as roads, housing, water, electricity and sanitation, among others
- Improving education infrastructure and services
- Facilitating access to enterprise development opportunities for local entrepreneurs'

According to a forthcoming report regarding the Kansanshi mine specifically, 'Kansanshi is aware that what happens in the community has a direct impact on the work place and *vice versa*. In this respect, the mine is committed to health programmes and projects that promote the health of the wider community'.[24]

Of primary importance for Kansanshi has always been the safety of its employees. To this end the first health intervention was the creation and running of first aid posts on the mine site 2004 - 2009 staffed by paramedical staff. Anyone who needed referral was sent to either the Solwezi General Hospital or to Ndola, Lusaka or South Africa. During the same period, FQM had an agreement with a Zambian-based health provider, Hilltop Hospital, which did not materialize into quality health care for mine employees despite repeated attempts to improve the service delivery. When FQM took the decision to construct their own clinic, the process was beset by delays in obtaining land titles from the Solwezi Council and a National Government-imposed moratorium on building in Solwezi until a town plan had been developed. The opening of a clinic for employees and their dependants that provides comprehensive services happened just 3 years ago, in 2009.

The rationale for initiating larger scale health programming therefore appears to be a combination of adherence to the companies need to ensure the health and safety of its employees, the strategic desire to improve health locally as part of a CSR strategy, and the understanding that improving the health of the communities is important to improving the health of the workforce.

Much of FQM's socio-economic development work is undertaken through the Kansanshi Foundation. At the time of its establishment in 2006 it was allocated US$1m for projects, it currently has an annual budget of about US$2.2m. Since its establishment in 2006 it was intended that the Kansanshi Foundation would have an important role to play in the planning for all CSR interventions. When it was first established the Foundation engaged little with communities and other stakeholders, rather making independent decisions

[23] Sustainability report 2011, First Quantum Minerals Ltd (page 21)
[24] Kansanshi report -third proof 09.05.2012

about projects to support. A report in 2011[25] recommended that Kansanshi should move from its top down approach to community initiatives to 'Engaging communities from the bottom up to find out what they want and need e.g. by moving beyond traditional donor-recipient relationships to actual collaboration and empowerment'. From observation and discussion during the field work for this case study there certainly seems to be a move by the Foundation that goes beyond rhetoric of community development and dialogue. It appears to be taking a far more inclusive approach to stakeholder involvement and is working towards strengthening community engagement in decision making about what to, and what not to, fund.

Conservation farming, which involves modifying traditional farming methods to increase the yield of a plot of land, is the core of the work of the Foundation with the objectives of domestic and local food security, reducing dependence on Kansanshi mining, alternative income generation and empowering women and the unemployed. Whilst these are all important areas to provide a positive environment for better health, the specific health programming was conceived and planned through a separate process, and not through the Foundation.

Before the appointment of a health coordinator in 2008 decisions about any support for health interventions in the community were made on an ad hoc basis by non-health staff of Kansanshi plc. There was no formal design process, rather decisions responded to company ideas and community requests. Occasionally support was in response to a request from the provincial and/or district medical officer.

No baseline assessment of health needs or of other stakeholders and their activities among the communities covered by Kansanshi was undertaken. Kansanshi and FQM have learned lessons from this. For example:

- In its new operational areas under the Trident Project, FQM has undertaken a health assessment.
- FQM plans to have on-going planning and financial gap dialogue with local health authorities from the outset in the Trident areas.

  In both the area around Kansanshi mine and for Trident, requests from village chiefs for building health facilities are no longer agreed to without prior discussions with the DHMT and checking the district health action plan and any health facility planning.

There does seem to be a degree of synergy between the district health system priorities and the scope of the Kansanshi's programming in the district. Though, as stated earlier, the district health priorities are broad so most health programmes would align in some way and this alignment does not appear to be the result of a conscious decision making in the conception process.

Early planning discussions actually led to a failure to align with public sector needs. Initial plans for the Kansanshi to support construction and operation of a new wing in Solwezi General Hospital were halted following failed to agree on plans for management input, and the Kansanshi Plc moved to construct its own

[25] Seeking Benefits and Avoiding Conflicts: Community-Company Assessment of Copper Mining in Zambia, 2011, by CRS, London School of Economics, Business Community Synergies and the University of Leeds, UK

facility instead. More recent progress in partnership building appears to have fostered a move back to more public-sector focused support; this is discussed further in the partnership section.

At the level of FQM discussion and synergy with public sector needs appear to have been more prioritised. The conception of a malaria programme, for example, came about after FQM identified a potential role for filling the gaps in the realisation of the current national malaria control strategy in the districts where the FQM mines are located, but also nationally. Discussions with members of communities during the field work for the case study highlighted that health did not seem to rank very highly as a priority among their communities. Employment is usually their top priority.

4.2. Description of the programme (within and outside the fence)

To frame the section, a brief overview of the FQM health programme is given in Box 2.

Box 2. Summary of the FQM health programme

Inside the fence

Outside the fence:

- Solwezi General Hospital
- HIV Programme
- Malaria PPP
- Health Professional Education

Mine employee and dependent health – 'Inside the fence'

From 2004 - 2009, FQM employee health was covered by access to two health posts on-site in addition to a paramedic team, in addition to the Hilltop Hospital care mentioned above. During this time period, FQM proposed to renovate the Solwezi General Hospital, provided FQM had oversight of the facility management. The MoH declined the proposal on the basis of management autonomy for public sector health facilities. Subsequently, FQM constructed the Kansanshi Mine Clinic in Solwezi town for mine employees and their families, which opened in 2010. The South Africa-based health services provider, Crusader Health, was contracted for three years to staff and operate the 15-bed facility. The Crusader Health contract is currently under re-negotiation. Crusader Health employs 1 full time facility manager, 3 full-time doctors, including 2 from the Democratic Republic of the Congo, 1 expatriate doctor part-time, 1 expatriate nurse, and a team of Zambian nurses.

The first aid posts on the mine site are still operational, and are also managed by Crusader Health. All employees of FQML and Kansanshi mine are able to access the services of the first aid post while on-site, whether they have opted in or not for care from the Kansanshi Clinic. The Kansanshi Mine Clinic is open to employees and their families on an opt-in basis – employees must register themselves and their family

members through the mine, and pay a premium deducted from their salaries. To contain costs, there is a maximum spend on individual employees outside of the clinic and hospital facilities available in-country, determined on a case-by-case basis. Contractors are not currently covered by FQM health programmes, but a new initiative designed to allow small contractors to opt-into FQM's health care system through two smaller clinics is to be established, initially focusing on HIV voluntary counselling, testing and treatment.

Services offered at the Kansanshi Mine Clinic are otherwise free of charge, and include primary care and occupational health services for national staff covering:

- Pre-employment medicals,
- Emergency care
- Laboratory services
- Physiotherapy
- X-ray and ultrasound services
- Ante-natal care (ANC) with long-lasting insecticide nets (LLIN) provision, post-natal care, family planning,
- Under 5 immunisations,
- HIV counselling, testing and treatment,
- TB testing and treatment,
- Non-intensive care injuries.

Referrals are generally done to Ndola or Nchanga General Hospitals - 4 and 2 hours away by car, respectively. The nearby Solwezi General Hospital, which is currently being expanded and renovated by FQM in a new agreement with the provincial health authority, is not yet of sufficient operational capacity to offer value-added on the facilities and services offered by the Kansanshi Clinic.

The Clinic's principal partner is the DHMT. The clinic follows Zambian MoH standards and guidelines related to, for example, malaria case management, pregnancy and deliveries, HIV cases, TB diagnosis and treatment and other notifiable diseases. In January 2012, the Kansanshi Clinic registered to be linked into the public health system on account of receiving ARV and TB drugs through the national distribution system funded by the President's Emergency Plan for AIDS Relief (PEPFAR), and has received one supervision from the District Health Office (DHO). These visits are set to take place quarterly, with the clinic evaluated on MoH standards for health facilities. In addition, the Clinic also has an obligation to report statistics related to HIV and TB cases to the District Health Office.

Stock outs at the clinic are unknown, as the Crusader Health management of supplies and commodities is efficient and it has a diversity of suppliers, including a selection of Zambian pharmaceutical wholesalers from nearby Copperbelt Province as well as suppliers in India – the quality of these drugs has so far not been a problem for the clinic, there is no evidence of counterfeit drugs being supplied. Medicines, medical consumables and some equipment are often procured from outside of Zambia but still in the region, such as from South Africa.

Employees may access the clinic, which has hours from 7am – 4pm, daily, except Sundays. The clinic is located several kilometres from Solwezi town in the direction of the mine, but is accessible by public transport or the hourly FQM bus, free for employees, which runs a service between the mine and Solwezi town, passing by the clinic. Monthly premium deductions for healthcare access at the Kansanshi Clinic and referrals to other supported facilities are 150,000 ZKW for a single employee and 250,000 ZKW for an employee and their family – approximately US$ 28 and US$ 48, respectively. In practice, salary deductions for this premium are not uniformly applied and do not cover operating costs of the clinic, which overall costs FQM approximately US$ 450,000 per month.[26]

The operation of the Kanshanshi Clinic is overseen by FQM human resources department and the health team coordinator, falling under the same management oversight and direction as the outside the fence, or community-focused, health programmes.

Mine-affected community health – 'Outside the fence '

FQM's activities outside the fence programmes are numerous and varied, spanning 3 mine sites across northern Zambia – Ndola, Solwezi and the greenfields project, Trident. For the purposes of this case study, Solwezi only was considered.

Within Solwezi district, FQM is presently involved in the following heath sector projects:

- Solwezi General Hospital redevelopment
- HIV programme and Malaria PPP – through community road shows and mobile health unit
- Health professionals education

<u>Solwezi General Hospital</u>

Following extensive negotiations, FQM is financing, through the Kansanshi Foundation, the rehabilitation of the provincial referral hospital in Solwezi town. The rehabilitation, started in September 2011 and estimated to take 5 years in total, will cover the renovation and reorganisation of all existing wards and expansion of the outpatients department, with the addition of an emergency care facility, intensive care, mental health unit, dialysis facility, administration block and a private patient wing. The rehabilitation budget is an estimated US$ 2.2m.

The private care wing has been designed to support the sustainability of the hospital by providing income which can be reinvested into the 'low-cost' part of the hospital which serves the less affluent population. While a high-cost wing does currently exist, it is run at below-cost rates due to poor structuring of the fee system, and consequently is presumed to be siphoning resources away from the low-cost wing in order to break even. The MoH recently abolished user fees in public sector health facilities, and a private care wing at the hospital is timely in terms of filling the income gap currently being experienced by the hospital.

[26] Based on April/May/June 2011 cost figures

The provincial health office has committed to staffing and maintaining the renovated and upgraded facility once the renovations are handed over by FQM, who are also encouraging their contractors to provide inputs into the hospital's rehabilitation through in-kind technical contributions.

HIV Programme

The HIV programme of FQM includes a mobile VCT unit in Solwezi, which does regular campaigns to raise awareness about HIV prevention and VCT, as well as malaria, cholera and diarrhoeal diseases. Major campaigns take place in May and November each year, in addition to a sexually-transmitted infection (STI)-focused campaign in June. Results of the campaigns in terms of numbers tested are compiled by CHAMP and shared with FQM.

Regular activities include weekly VCT at the Kansanshi mine for employees and monthly BCC training for employees on the different roles of men and women in safe sex and prevention. This successful module, piloted with IOM initially under the name 'One Man Can' has now been expanded to a women's version 'One Woman Can'. Single-sex trainings for both males and females are held and provide information to FQM about risk behaviours of the workforce.

FQM's main partner in their HIV and malaria activities, CHAMP, also provides VCT during weekdays, as part of their work with the USAID Global Development Alliance partnership. Further details on CHAMP are given in section 2.4 below on partnerships.

Malaria PPP

FQM to support the national malaria programme to fill identified gaps is indicative of a larger movement among the Copperbelt/North Western Province mining companies to support the malaria programme with private industry resources – financially or in-kind – in consultation with the national malaria control programme. FQM noted a gap in the NMCP programming, and sought to target support for the NMCP to fulfil its strategic plan in certain key thematic areas.

In line with its desire to fill gaps in the 'science', or monitoring and evaluation areas of the national malaria control strategy, the support from FQM includes:

- rebuilding the insectary of the Tropical Disease Research Centre (TDRC), based in Ndola,
- support to entomological studies, parasite prevalence studies, effectiveness of insecticides and breeding site mapping[27]
- delivery of ITNs under the mother/child and general programme in North Western Province[28]
- Support to DHMTs in general for the roll out of the national malaria control strategy, including support on logistics, such as transport for insecticide residual spraying (IRS) campaigns and monitoring. To date, this partnership has led to the identification of DDT resistance among Anopheles mosquitoes in the area, which had rendered DDT IRS campaigns futile.

[27] FQM Sustainability Report 2011 p. 30
[28] 200,000 ITNs were delivered under this programme by FQM in 2011

- In the new greenfield sites surrounding the Trident mines, malaria control has included IRS, Seek and Treat, and training of Community Health Workers to seek cases in hard-to-reach areas.

Currently, FQM also finance the administration and management oversight of the malaria public- PPP, which is undertaken by CHAMP, to continue to advocate and coordinate for private industry support to the Zambian malaria programme. CHAMP's role in the malaria PPP emerged from the successful partnership on the HIV programme.

Health Professional Education

FQM spends 50,000 – 70,000 US$ per year on health-related scholarships and training for promising FQM employees and DHMT staff. This has included the training of FQM employees and Ndola and Solwezi DHMTs as health promotion officers as well as providing training for a doctor and nurse from the district in ophthalmology – in line with the current MoH strategic direction. Currently, FQM is also financing an undergraduate in physiotherapy, an MSc in dermatology, a family medicine post-graduate and an MPH.

4.3. Plans for wider impact

There are no plans for any scale up of health initiatives by Kansanshi in Solwezi district. The emphasis will be more on consolidation, on aligning the work with the needs as identified by Solwezi DHMT and strengthening the dialogue with communities. Significant inputs will go into planning and implementing health activities in the new Trident project. This will be done with both the provincial and district health offices.

Increasingly, much of the work by FQM in health is aligned to the district health plan. Work done outside the framework of the district health plan is on the direct health needs in the work place such as the running of the mine clinic, workplace programs for HIV, TB, etc. In this context, sustainability is not relevant. Where FQM has helped with the development of an independent private clinic such as the Mary Begg Clinic in nearby Ndola, where many of FQM's international staff are based and their first operations in Zambia began, all the health infrastructure has been developed to an appropriate and sustainable level.[29]

Strategically, the greatest impact on the health of employees and the community will be from economic diversification now so that there is employment post the life of the mine. This is an issue that is addressed at the FQM Board level and there is evidence of this in practice in the CSR program development and local enterprise development assistance through for example, the Foundation.

[29] As noted above, the focus of the case study is on those health interventions undertaken by FQM immediately surrounding the Solwezi operations. However, this dichotomy is somewhat difficult to maintain, owing to the large amount of intra-FQM traffic between their operations in Ndola, Copperbelt Province, and Solwezi, in North Western Province. The Mary Begg Clinic is one such instance – having been constructed to benefit the Ndola-based community, but being accessible to those in Solwezi as well.

4.4. Partnership: structure and functionality

CHAMP and the Solwezi DHMT are FQM's most visible and active partners. CHAMP has a large implementation responsibility and capacity, as well as extensive experience in developing, implementing and managing health PPPs in Zambia. Mutual respect and partnership between CHAMP and FQM is evident, and capacities appear to be largely matched.

CHAMP is FQM's main private sector partner in the implementation of outside the fence health interventions (HIV/AIDS and malaria). Engaged in 2005 through the USAID Global Development Alliance (GDA) to develop the HIV in the workplace programme at FQM, the relationship with CHAMP has expanded and they are now managing the malaria PPP initiated by FQM. The substance of CHAMP's work is divided into three areas – workplace programmes and policies; company work in communities; and mobile health unit direct care and services. CHAMP provides all of these services to FQM through a memorandum of understanding, which reflects the current USAID GDA 3-year programme (finishing in September 2012) and a contract covering the direct work within companies as well as trainings, programme development and implementation done in communities.

CHAMP's approach to all programmes is to assess and address the gaps in the implementation of the MoH national plans, through engagement of the government and coordination of the private sector response. In this case, FQM and the DHMT in Solwezi work with CHAMP to create a health programme that satisfies both parties' interests and needs – for instance, the limited resources of the MoH vis-a-vis the high efficacy of certain costly interventions, such as the mobile health units, and the role for a private sector company in providing a solution to these limitations through partnership.

The value-added of CHAMP's partnership with FQM is evident, through their profound understanding of the stakeholders, context and interests at stake in developing health PPPs in Zambia. FQM contracts CHAMP directly to undertake the HIV/AIDS and malaria work.

The MoH currently sees Kansanshi/FQM mainly as a cooperating partner, only the malaria prevention programme is perceived as a public-private partnership. According to the provincial medical officer the relationship between Kansanshi mine and the Solwezi district health system is relatively new. Serious discussions first started roughly 5 years ago when Kansanshi suggested to the MoH authorities that the Foundation build a private wing to Solwezi General Hospital. The intention was that FQM and Kansanshi employees who had company medical insurance coverage could be treated both as out patients and in-patients along with those members of the public willing to pay for care. Kansanshi saw such a move as preferable to building its own separate clinic totally unrelated to a MoH facility. On completion of the private wing Kansanshi wanted a say in the management of the hospital to which the MoH did not agree.

This year the provincial medical office is determined to pro-actively involve Kansanshi in strategic planning meetings and discussion about funding gaps. This is with the objective of Kansanshi moving towards fully aligning their support within the framework of the MoH provincial and district action plans and harmonising the work of Kansanshi with all other stakeholders in the community.

It is apparent that the relationships between the mine and local health authorities are to a great extent dependent on individuals in their respective posts. A recent change in government has led to some transition over the last 8 months which has also stagnated some planned progress in general mine, but also health activities.

4.5. Governance, monitoring and oversight process

Governance of the Kansanshi health work is the responsibility of the FQM expatriate health coordinator. There is no health department, unlike for example, for CSR and infrastructure, health functions as an independent body within FQM. Some FQM documents refer to First Quantum Health which essentially means the health coordinator and her deputy are part of human resources corporate team and provide a broad based response to health issues and development for the FQM company with the focus of their effort being mainly in Zambia. Only a few of the policies and guidelines developed by First Quantum Health apply worldwide as most of the work implemented is not needed in other FQM locations such as Australia and Finland. Administratively, the health coordinator is accountable to the FQM director of human resources.

The FQM health coordinator and her team of 6 nationals work with the Kansanshi Foundation in an advisory capacity and coordinating role for various health related projects. There are also a number of other aspects of work that don't fall under the Foundation e.g. the Soltech and neighbouring communities programme, graduate and apprentice programmes and environmental programmes that benefit from advice by the health team.

As mentioned earlier FQM is applying some lessons learned to the new Trident project such as doing baseline studies. Monitoring and evaluation (M&E) will then become an integral part of the work. Other M&E such as of the Kansanshi work is ad hoc; for HIV for which some statistics have been kept since 2006 statistics, some analyses on HIV prevalence is being done. And for malaria there are some ongoing entomology and parasite prevalence studies. In the mine clinic it is possible to track the incidence of STIs.

The Kansanshi Mine Clinic has an annual audit as the running of the facility is contracted out, as is also the case at Mary Begg in Ndola and Trident.

5. PROGRAMME COSTS

5.1. Inside the fence services

The Kansanshi clinic cost US$ 1.5 M to construct in 2009 - 2010, and a further US$ 500,000 to equip. Estimates suggest that the clinic consumes an additional US$ 100,000 each year in maintenance and capital costs. Crusader Health bills FQM for approximately US$ 220,000 each month for services provided to employees and their families who opt-in. The financing for these inside the fence health services, known as 'direct health', come from the FQM HR component of the operations budget.

Opt-in employees register themselves and their families with FQM HR, and pay a portion of their wages each month as premiums – single employees pay ZKW150,000 and employees with families pay ZKW250,000 per month (approximately 30 – 50 USD per month respectively).

As noted above, the company aims to make as many quality health services as possible available locally at an international standard, through the network of clinics supported by FQM in Solwezi and Ndola, and with medical evacuations only as a last resort. For instance, physiotherapy patients used to be transferred to private health services in South Africa for treatments – there is now locally-available physiotherapy service, partially covered by the insurance premiums paid by employees.

Kansanshi mine also complies with Government of Zambia Occupational Health and Safety standards for mine employees to be tested for STIs and silicosis on an annual basis, which costs the company a further US$ 120,000 per year in direct health costs for employees. This is currently being overhauled to improve the efficacy and range of the Occupational Health monitoring system, to reflect and improve the safety and standards of the mine site.

The global figures for FQM spending on direct employee health in the 2009 – 2012 period are shown in Table 4.

Table 3. FQM spending on direct employee health 2009 - 2012

Item	Cost (US$)	Frequency	Total (US$)
Construction of Kansanshi Mine Clinic	1,500,000	1	1,500,000
Equipping of Kansanshi Mine Clinic	500,000	1	500,000
Maintenance of Kansanshi Mine Clinic	100,000	3	300,000
Monthly Payments to Crusader Health	220,000	24[30]	5,280,000
Annual employee STI/silicosis checks	120,000	3	460,000
TOTAL SPEND (US$)	-	-	8,040,000
TOTAL ANNUAL SPEND (US$) - recurrent costs[31]	-	-	2,860,000

[30] Crusader Health is in the process of renegotiating its contract with FQM after its initial 2 year contract
[31] Recurrent costs do not include the capital investments of constructing or equipping the Kansanshi Mine Clinic

Table 5 shows employee wage contributions to the health spending inside the fence. These figures are based on employee enrolment figures in the opt-in programme at Kansanshi Mine Clinic and assume that the average employee has been enrolled in the programme since the mine clinic opened 2 years ago.

5.2. Outside the fence services

Table 6 shows estimated annual spends on the major programme components of the FQM community health work. These estimates will err on the high side of the estimation range, as they take into consideration years of implementation where the scale of the mine, thus the community and employee programme would have been smaller than that of the mine currently.

Table 4. Extrapolated annual spend on the major programme components of the FQM community health work

Programme	Annual Budget (US$)	Years of implementation	Cumulative Spend
HIV programme	400,000	7	2,800,000
Healthcare (includes commissioned studies, additional one-off malaria programming, internal trainings)	500,000	9	4,500,000
Malaria PPP	200,000	3	600,000
Home spraying (IRS)	200,000	7	1,400,000
TOTAL ANNUAL SPEND (US$)	1,300,000	-	-
LOP CUMULATIVE SPEND (US$)	-	-	9,300,000

In addition, Kansanshi Foundation is investing US$ 2.2M over 5 years into the rehabilitation and expansion of the Solwezi General Hospital – or an average of US$ 440,000 annually.

5.3. Financing Modalities

FQM finances 100% of their inside the fence programming, variously from operations or health budget allocations, save for the premiums paid by employees at the Kansanshi Mine Clinic. The same is largely the case for outside the fence programming. However, particularly with large health infrastructure investments, FQM has participated in proposal development for large institutional donors such as the EU to support the financing of capital equipment inputs for Solwezi Hospital. This approach will be replicated in the health system infrastructure FQM develops with its partners in the area around the new Trident mine. An extensive social impact assessment and environmental impact assessment have been conducted in the area to determine the baseline and health needs of the community, in coordination with the Provincial Health Office (PHO) and DHMT. Health forms a component of these assessments.

The HIV programme was developed from a USAid-funded GDA programme, 'HIV/Aids Workplace Programs', from 2005 – 2008, and which included partnerships with all major mining companies in the Copperbelt, as well as major farming and agricultural companies in the area. The programme developed a workplace HIV programme which was also implemented in the communities surrounding the mining or agricultural operation. The partners on the programme funded US$ 22.8M, with USAid providing US$3.3M. Breakdown of contributions among the 8 private companies and 1 trade association involved was not available. Phase 2 of the GDA (2009 -2012) has expanded to 8 out of 10 provinces in Zambia, with USAid investing US$ 9M.

5.4. Cost effectiveness

FQM has the discretion to invest in programmes and activities which are assessed as having high impact, regardless of their cost. So while many annual budgets for health programme components run into the hundreds of thousands of dollars, a recent 'seek & treat' campaign for malaria in the Trident mining area, deemed particularly high impact due to the large number of cases identified, cost the company only US$ 4,000.

FQM expects to have much clearer data on cost-benefit for their employees and external programmes in the coming months following the roll out of the new internal HR/payroll system and by plans to conduct analysis using a DFID-funded cost-benefit tool which is being finalized.

6. PROGRAMME BENEFITS AND IMPACT

6.1. Employees and families

All the estimated 8,000 people employed by Kansanshi and 1,800 employees of FQM are direct beneficiaries of work place health services and activities. The majority of staff is male.

6.2. Communities

In theory, the total estimated population of 45,000[32] of Solwezi town indirectly benefits from the work in health by Kansanshi.

There are no baseline health and disease data for the Kansanshi catchment area so it would be wrong to make a judgement about health impact on the direct and indirect community beneficiaries. Even if it were possible, no direct causal link could be attributed to Kansanshi as the MoH is actively involved in improving the health status of the communities in this area as are other stakeholders both in the community and providing nationally, from which Solwezi district benefits e.g. NGOs, private for profit health providers, UNICEF and the Global Fund to fight AIDS, tuberculosis (TB) and Malaria.

Kansanshi has built a number of new health facilities such as urban and rural health centres, rural health posts and urban clinics. It has also built extensions or renovated others or helped establish a clinic within a facility such as a prison. On average the Kansanshi Mine Clinic, built in 2009, has 36,000 visits per annum by the mining work force and their dependents. In addition, Kansanshi also runs some mobile health units, which among other services currently provides drugs for 820 people on anti retro-viral therapy; twice a year there are mobile road shows. To date between them the two aspects of mobile health work have provided voluntary counseling and testing for 15,000 people in the community. In the absence of baseline figures and as far as can be discerned here has been no unintended or unusual change in the health of the Solwezi community since the implementation of health interventions by the company. Some changes for the better that cannot be directly attributed to the mining health initiatives include: no cholera outbreak for the past 3 years, a marked reduction in the malaria infection rate and the incidence of HIV has remained low despite an increase in risk factors including population movement into Solwezi district.

6.3. Mining company

FQM has historically kept records of work-related injury and illness. However, data related to lost productivity due to illness is not centralised. A new human resources strategy to streamline and consolidate this information in a new HR data system is currently being rolled out, with accurate data available in the coming months. Current data was not considered to be sufficiently accurate.

Assuming that the reduction in malaria cases in the surrounding area is reflected in a reduction in malaria cases in the workforce it is certainly likely that the mining company has benefitted from reduced loss of working days to this illness.

[32] Preliminary number from the 2010 census, Central Statistics Office, Lusaka

6.4. Local government and health system

The local health authorities have received direct and on-going support. Financial and in kind support has been provided in the following areas: community voluntary counselling and testing, IRS, fogging in selected peri-urban areas of the town, logistics support for the annual universal coverage LLIN distribution and provision of mobile health services, *ad hoc* support for infrastructure and responding to requests from the provincial and/or district health offices for graduation ceremonies and for malaria, TB and/or HIV days etc.

The MoH benefits from a strengthened dataset, with the Kansanshi Mine Clinic regularly contributing data to the MoH health information system, specifically on HIV and TB and any notifiable disease.

Longer tem benefits to the health system are the infrastructure support; the proposed renovations and expansion of the general hospital and the educational scholarships offered to DHT personnel.

7. STAKEHOLDER PERSPECTIVES

7.1. Beneficiaries

Health seems not to have been a top priority among communities in Solwezi district, and during focus group discussions, community representatives had conflicting reports about what had and had not taken place in their communities with regard to health-related initiatives by Kansanshi Mining PLC. Observation of some of the ambitious community road shows underway during the case study visit demonstrated promotion of VCT and malaria testing, attracting large crowds in each village visited.

As noted by road show health volunteers, one of the main challenges facing the impact of these road shows is the lack of capacity for follow-up on positive HIV and malaria cases - after the festival feeling of the road show there is a large degree of uncertainty as to how many positive cases actual present at a local health facility for further tests and treatment.

Figure 3. Community Road Show at Mushitala, Solwezi District

7.2. Partners (including government)

Discussions with the main non-governmental partner, CHAMP, suggests mutual respect and fairly equal matching of capacities between FQM and CHAMP.

In terms of the overall environment and propagating good practice, it's important to recognise the CHAMP programme and its Business Response for Access to Treatment (BRAT), created a platform for public private partnership cooperation, initially around HIV/AIDS, expanding to encompass broader Primary Health Care and related programming. The companies, including FQM, as well as the Ministry of Health seem to have a high regard for both the value that has been brought by this platform, the lessons they have learnt together, and for the trust they have forged in it. With the prospect of USAID funding cession, a Zambian Health Alliance is being set up to take this work forward and to build on the already-strong PPP track record in Zambian health programming.

In general, the work of Kansanshi is much appreciated by the provincial and district medical offices who perceive improvements in service delivery and also in access to services through building new facilities and doing some add-ons to existing health facilities.

In the past, some problems were encountered such as when some health facilities were built by Kansanshi at the request of communities and no consultation with the district health office about their staffing etc and when some were built with no water and electricity supplies. But FQM has learned from this and there is now productive dialogue with the authorities about what is, and is not, needed.

Overall, the partnerships on the FQM health interventions underlined the importance of quality and regular communication channels between stakeholders, the role of human resources management in terms of having the right people in the right roles to coordinate and push issues appropriately and consistently, and understanding the complexity and nuances of a health PPP and the challenges posed in coordinating with government in the context in which FQM finds itself – locally, provincially and nationally.

8. ANALYSIS OF PROGRAMME STRENGTHS

8.1. Strategic issues

FQMs have recently consciously modified their approach, from independent decision making and parallel programming, to partnership with, and support to, the district and provincial health authorities and the public health system.

Some good practices were identified during the fieldwork for this case study. These are:

- Applying lessons learned in health e.g. pre-assessments with baseline information and the need to be involved with the local health authorities from the start on planning and deciding which interventions
- Liaising closely with the provincial and district health authorities
- Working within the framework of MoH policy e.g. on HIV in the workplace and MoH guidelines e.g. for the treatment of diseases and for building and equipping health facilities
- Filling MoH identified gaps e.g. for health days and helping raise morale of MoH personnel e.g. support for graduation ceremonies
- The Kansanshi Foundation is taking a relevant, participatory, multifaceted approach to community development with conservation farming as its core work. Related work includes vegetable gardens, adult literacy, personal financial management, business acumen, improved water supplies all of which can indirectly contribute to better health.

In the wider context the Kansanshi Foundation is (unintentionally) addressing a number of the social determinates of health which in itself, can be deemed a very successful approach. For example, it is helping ensure diversification and increased employment with its conservation farming and other income generating work. It is also supporting adult literacy, personal financial management and business acumen, all of which can indirectly contribute to better health.

The value added of the combined sum of FQM, Kansanshi plc and the Kansanshi Foundation in its' work in health is it flexibility, its' lessons learned culture, the willingness to have a two way dialogue with the community and authorities rather than a top down one, its' close adherence to many of the principles of the Paris Declaration on aid effectiveness[33] and its transparency.

Of deserved recognition is the fact that FQM and Kansanshi has taken a public health approach as well providing support for more equitable and effective health services through infrastructure development, supply of equipment and commodities and mobile services. The main Kansanshi health workers in the community are called health promoters, highlighting one important aspect of public health. By perhaps focussing down in the future on 2-3 key subjects to ensure a comprehensive approach that covers public health and preventive and curative services along with health systems strengthening could have a demonstrable impact.

[33] DAC, Paris Declaration on Aid Effectiveness, Paris, February 28 – March 2, 2005

8.2. Operational issues

FQM recognises that without good data on the costs and impacts of its health programming it will not be possible to fully understand the strategic and social usefulness of the activities. It is recognised that the business case for PPPs in health is critical to having successful programmes; currently FQM does not have sufficient data to build a solid business case for continued investment. However the company recognises these gaps and is taking steps to redress these in a number of ways, both in building a better understanding of the health status of the workforce and the surrounding communities (in current and new operational areas), and in building internal data on the impact of poor health on company productivity.

Examples of the lessons learned culture are the fact that there was no baseline information collected at the start of the Kansanshi health work in 2003. Realising the challenges this has resulted in, in getting valid data about results and impact, pre-assessments providing baseline information have recently been undertaken in the new Trident mining areas. Similarly, from having implemented vertical one-off projects with little consultation with either the community or health authorities there is now a recognised need to, and active involvement with, communities and the provincial and district health authorities on planning and deciding which interventions to implement. More robust district and Kansanshi Mine Clinic M&E systems are now needed to better monitor results. They will also ensure better coordination and oversight of the health programme results and could provide value for money measures.

Kansanshi and FQM have also aligned and harmonised[34] their work with MoH policy and priorities e.g. on HIV in the workplace and MoH guidelines e.g. for the treatment of diseases and for building and equipping health facilities and malaria and HIV prevention and control which means they are closely adhering to at least 2 of the Paris Principles. A challenge now is to ensure quality data inputs, collection, analysis and dissemination so that the results can be better used for decision making[35]. Applying the principles of alignment and harmonisation and also working towards managing for results are issues that could and should be applied elsewhere in mining health initiatives including PPPs.

Filling MoH identified gaps is important to help raise the morale of those working in the health sector. Ad hoc donations for health days e.g. International AIDS Day and Child Health Week, support for graduation ceremonies etc are very useful alongside a comprehensive development approach.

[34] As defined by the 2005 Paris Declaration - the principles (2 of 5) of:

Alignment: Donors base their overall support on partner countries' national development strategies, institutions and procedures
Harmonisation: Donors' actions are more harmonised, transparent and collectively effective (includes: donors implement common arrangements and simplify procedures; complementarity: more effective division of labour; incentives for collaborative behaviour

[35] Another Paris Principle **'Managing for results'** means managing and implementing aid in a way that focuses on the desired results and uses information to improve decision making. The remaining 2 Paris Principles are ownership **(**Partner countries exercise effective leadership over their development policies, and strategies and co-ordinate development actions)
and mutual accountability. The latter is also evident as FQM and Kansanshi are very transparent in their management of health.support..

One way that Kansanshi could perhaps see that its inputs in partnership with the MoH and other stakeholders are together are getting results would be to focus down and consolidate its work in a few areas. For HIV and AIDS and for malaria prevention and control for example, this would help the MoH ensure that comprehensive programmes are being delivered, that there are no gaps. Unless and until all facets of prevention and control are addressed and well managed, incidence rates will not demonstrably decrease.

To ensure comprehensive programmes it would be useful to work with the district health management team to determine annually exactly what are the funding gaps for work on HIV and malaria, to produce a funding gap analysis for each subject. The district knows in about September each year what funds it will receive from government. The challenge then would be to determine what the funds will cover, what other stakeholder inputs there are and what the gaps are both in terms of monies and commodities. In this way Kansanshi, indeed all stakeholders, will have a clear idea on what are the needs, rather than a vague notion that one's inputs are somehow, somewhere needed. A funding gap analysis would also help strengthen arguments by the district and provincial levels for more government funds in the future to help ensure sustainability.

The results of standard, relevant indicators should be discussed as part of the annual reviews by the provincial and district offices. During annual reviews there should also be discussion about the efficiency of programme management. For example, are sufficient supplies delivered rapidly to communities e.g. bed nets during the annual universal bed net coverage campaign? Their use also needs to be better monitored.

One other area Kansanshi may want to consider getting more involved in is nutrition. According to provincial level data this is a major cause of morbidity and mortality among admissions to health facilities. It would also be a logical link with the socio-economic development of the Kansanshi Foundation, especially the conservation farming and small-holder vegetable and other food production. From such produce the local production of fortified food for supplementary feeding programmes might be a useful income generating project.

ANNEX A. LIST OF MEETINGS AND DOCUMENTS

People met	Position
Dr Liabwa George	Provincial Medical Officer, North Western province
Elliot Mutesi	Assistant District Medical Officer/Acting District Medical Officer, Solwezi district
Bruce Lewis	CSR Coordinator, Kansanshi Mining
Guy Hammond	Conservation Farming Coordinator, Kansanshi Foundation
Tena van der Vliet	Resource Optimisation Manager, Kansanshi Mining
Yolande Sander	Clinical Manager, Crusader Health
Rosanna Price-Nyendwa	Chief of Party, COMETS, CHAMP-Zambia
Dina Rosen	Public Private Sector Health Advisor-CHAMP Health
Gertrude Musunka	Health Projects & Programmes Advisor, FQM
Caroline	Health Promotions Officer, FQMOL
Anna Pascall	Health Team Coordinator, FQM

Documents Consulted:

1. Sustainability report 2011, First Quantum Minerals Ltd.
2. IMF Country Report NO.11/197, July 2011
3. Millennium Development Goals Progress Report 2011, Ministry of Finance and National Planning and UNDP www.undp.org.zm
4. Sixth National Development Plan 2011-2015, Government of Zambia
5. Behind the economic figures: large scale mining and rural poverty reduction in Zambia. The case of Kansanshi mine in Solwezi by Kingsley H Cheelo. First North Western Mining Watch, Mining Watch, Caritas Solwezi and Civil Society for Poverty Reduction, Published by the Extractive Industry Program, Catholic Diocese of Solwezi, 2009
6. The new and old copperbelt: Some points for reflection by Prof John Lungu in Mining Watch 2008, Caritas Solwezi and Civil Society for Poverty Reduction, Published by the Extractive Industry Program, Catholic Diocese of Solwezi, 2009
7. MoH Provincial Medical Office 2011 Annual Report. The Provincial Medical Office, North Western Province, Solwezi (source of the table is given in the report as the 2010 Annual North West Province Report.)
8. MoH, Solwezi District Health Management Team Action Plan 2011 – 2013
9. National Health Strategic Plan 2011 – 2015, Ministry of Health, Zambia (section 1.3.2)
10. MoH, Provincial Medical Office 2011 Annual Report, Solwezi, North Western Province
11. Kansanshi report -third proof 09.05.2012
12. Seeking Benefits and Avoiding Conflicts: Community-Company Assessment of Copper Mining in Zambia, 2011, by CRS, London School of Economics, Business Community Synergies and the University of Leeds, UK
13. DAC, Paris Declaration on Aid Effectiveness, Paris, February 28 – March 2, 2005

ANNEX B. MORBIDITY AND MORTALITY TABLES

Table Annex B-1. North Western Province and Solwezi District: Top ten reasons for OPD disease attendance per 1,000 population, all ages

	*NW province: Top 10 OPD diseases	Per 1,000 population	^Solwezi district: Top 10 OPD diseases	Per 1,000 population
1	Respiratory infection, non pneumonia	387	Malaria	388
2	Diarrhoea, non bloody	95	Diarrhoea, non bloody	98
3	Musculo-skeletal and connective tissue, non trauma	86	Musculoskeletal & connective tissue non trauma	61
4	Digestive system, non infectious	49	Trauma, other injuries	47
5	Trauma other injuries wounds	40	Digestive system, non infectious	37
6	Eye diseases, infectious	5	Eye diseases, infectious	30
7	Respiratory infection, pneumonia	26	Pneumonia	27
8	Skin diseases, non infectious	23	Skin diseases, non infectious	24
9	Dental caries	21	Throat infections	16
10	Pyrexia of unknown origin	20	ISkin infections	16

Table Annex B-2. North Western Province and Solwezi District: Top ten reasons for OPD attendance per 1,000 population, under 5 years of age

	*NW province: Top 10 OPD diseases	Per 1,000 population	^Solwezi district: Top 10 OPD diseases	Per 1,000 population
1	Respiratory infection, non pneumonia	996	Confirmed malaria	199
2	Confirmed malaria	476	Respiratory infection, non pneumonia	193
3	Diarrhoea, non bloody	308	Diarrhoea, non bloody	64
4	Eye diseases, infectious	114	Eye diseases, infectious	18
5	Digestive system, non infectious	74	Pneumonia	16
6	Trauma other injuries wounds	58	Trauma other injuries wounds	12
7	Pneumonia	75	Skin diseases, non infectious	12
8	Skin diseases, non infectious	54	Digestive system, non infectious	10
9	Intestinal worms	33	Intestinal worms	7
10	Skin infections	37	Anaemia	7

Table Annex B-3. North Western Province and Solwezi District: Top ten causes of admission, per 1,000 population, under 5 years of age

	NW province: Top causes of admission	Per 1,000 population	Solwezi district: Top causes of admission	Per 1,000 population
1	Confirmed malaria	38	Malaria	10
2	Pneumonia	13	Pneumonia	2
3	Measles	11	Non pneumonia	2
4	Non pneumonia	11	Anaemia	1
5	Diarrhoea, non bloody	9	Diarrhoea, non bloody	1
6	Anaemia	5	Measles	1
7	Trauma other injuries wounds	3	Trauma other injuries	1
8	Severe malnutrition	2	Severe malnutrition	1
9	Digestive system, non infectious	2	Severe diarrhoe with dehydration	1
10	N/A		Skin infection	1

Table Annex B-4. North Western Province and Solwezi District: Top ten causes of mortality, per 1,000 admissions, all ages

	NW province: Top 10 causes of mortality	Case fatality per 1,000 population	Solwezi district: Top 10 causes of mortality	Case fatality per 1,000 population
1	Severe malnutrition	212	Severe malnutrition	438
2	Sepsis	185	Tuberculosis	393
3	Cardio-vascular diseases	166	Sepsis	260
4	Tuberculosis	125	Cardio-vascular disease	240
5	Confirmed malaria	123	Abortion	104
6	Respiratory infection, pneumonia	81	Anaemia	86
7	Anaemia	79	Digestive system, non-infectious	79
8	Abortions	67	Pneumonia	67
9	Diarrhoea, non bloody	24	Diarrhoes, non bloody	47
10	Respiratory infection, non pneumonia	13	Malaria	33

Table Annex B-5. North Western Province and Solwezi District: Top five causes of mortality, per 1,000 admissions, under 5 years of age

NW province: Top 5 causes of mortality	Case fatality per 1,000	Solwezi district: Top 5 causes of mortality	Case fatality per 1,000 population

		population		
1	Severe malnutrition	170	Severe malnutrition	104
2	Anaemia	48	Pneumonia	78
3	Pneumonia	40	Anaemia	63
4	Confirmed malaria	23	Malaria	49
5	Diarrhoea, non bloody	19	Diarrhoea, non bloody	24

ANNEX C. SOLWEZI DISTRICT HEALTH STAKEHOLDERS[36]

Stakeholder	Catchment area	Programme focus and activities
John Snow Incorporated (JSI)	Solwezi Urban and all rural health centres	Support in capacity building to health centre staff on health commodities logistics management
Department of Water Affairs	Solwezi District	Protection of water sources Facilitating construction of protected wells and water testing
Ministry of Agriculture (Veterinary Department)	Solwezi District	Animal health Meat inspection and stock movement control
New Start/PPAZ	Solwezi Urban	HIV/AIDS/youth health services Peer counselling, HIV/AIDS CT services
Department of Land Resettlement	Kimasala (Kazhiba) and Katandano (Kainamfumu)	Allocating farm plots to settlers in resettlement schemes
DATF	Solwezi District	HIV/AIDS Multi sectoral stakeholders involvement in HIV/AIDS awareness through the district HIV/AIDS taskforce
Kansanshi Mining Plc	Solwezi Urban & Kansanshi Mine Area	Malaria prevention and control including environmental management and indoor residual spraying Provision of health services at their clinic for miners and their families Infrastructure development / maintenance at Solwezi urban clinic
Roman Catholic Church	St. Francis, Solwezi Urban, Holy family	Home based care Caring for the chronically ill patients in their home Management of clinics
CHAMP	Solwezi Urban, Maheba A, Lumwana East, Chisasa, Kankhozhi, Chitungu Mushidamo, Jiwundu, Kimasala and Chovwe HCs	HIV/AIDS Stakeholders involvement in HIV/AIDS –ART mobile services Malaria prevention
Department of Community Development	Solwezi Urban & Rural	Community and social work Mobilizing communities for projects for poverty alleviation
Society for Family Health	Solwezi urban & all health centres	HIV/AIDS, malaria prevention, safe drinking water & family planning ITN supplies & distributions, chlorine & condom supply & distribution Male circumcision
North Western Water and Sewerage Company	Solwezi urban, Mutanda RHC Kazomba and Solwezi urban	Urban water supply Providing water and sewerage services to the township and peri-urban areas
Zambia Prevention, Care & Treatment Partnership (ZPCTII)	Mapunga, Mumena, Maheba D, St Dorothy, Solwezi Urban, Chovwe, Solwezi General, Kanuma Hospital, Luamala, Kyafukuma, and Kapijipanga and Mushidamo RHCs	HIV/AIDS Institutional strengthening Educating people about HIV/AIDS through NHC NGOs and RHC staff training Equipment and commodities provision
Red Cross	Solwezi district	Accidents victims Helping people with major misfortunes

[36] Taken from the Solwezi District Health Management Team Action Plan 2011-2013, Ministry of Health

United Nations Population Fund (UNFPA)	All health facilities	Maternal and neonatal health and family planning, Capacity building on integrated reproductive health, PMTCT and youth friendly services. Nursing student sponsorship
UNHCR	Maheba refugee camp • Maheba A • Maheba B • Maheba D • Maheba F • Jagaimo	Refugee affairs Alleviation of the suffering of refugees in Maheba refugee camp Infrastructure development HIV/AIDS/ male circumcision, procurement of drugs Institutional strengthening Coordinating activities for all refugees in the camp
Solwezi Municipal Council	Solwezi District	Servicing the township Refuse collection. Facilitation of development in the district
D-WASHE (District Level)	Solwezi Urban & Rural	Facilitating water and sanitation activities among the communities in the district - construction of protected water wells and sanitary facilities
Corridors of Hope III	Mushindamo, Lumwana East, Solwezi Urban,Teachers training college	HIV/AIDS prevention STI prevention and treatment BCC HIV/AIDS - mobile VCT and family planning
World Vision Zambia	Musele ADP, Kankhozhi, Chisasa, Chitungu, Jiwundu, Wamafwaha, Kambiji and Kanzala RHCs	Rural development Child development and poverty alleviation Infrastructure and equipment development of rural health centres CMAM programme
Lumwana Mine	**Mining Area** Own clinic Mutanda, Mumena, NkuLumazhiba, Shilenda, Holy Family, Lumwana East	Mobile clinic ,PMTCT/Child health IRH,curative and infrastructure development ITN procurement Poverty alleviation activities