The Chirano Gold Standard
- A Successful Private Sector Initiative Against Malaria -

GBC Health’s Corporate Alliance for Malaria in Africa (CAMA) Workshop, Accra – Ghana
12th September, 2013

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Introduction - Chirano Gold Mines Ltd
- A Kinross Company -

- Kinross was founded in 1993 and has grown to become the world’s leading global gold mining companies
  - Has a portfolio of 9 operations spanning 6 countries on four continents

- The Chirano operations (in Ghana) employs over 2,300 people

- Highly committed to Corporate Social Responsibility
  - Our goal is to make a positive impact and ensure that the local communities and the countries where we operate are better off - economically, socially, and culturally - as a result of our activities.
Introduction - The Disease, *Malaria*

- Malaria is a parasitic disease transmitted through the bite of an infected female *Anopheles* mosquito
  - *The disease is preventable and treatable, yet the No. 1 killer of children and pregnant women in Africa*
  - *660,000 deaths recorded in 2010*

- Malaria situation in Ghana – 2012 Annual stats;
  - *3 million clinical episodes (30% among children <5yrs)*
    - *entire 24.2million population at risk*
  - *15,000 deaths among children (33.4% of all deaths)*
  - *2,000 deaths among pregnant women (9% of all deaths)*
  - *37.5% of all OPD attendants*
  - *36% of all admissions*
Justification
Why Our Interest in Malaria Control?

- Malaria Burden at the Chirano Area – 2008 (Baseline)
  - >60% of OPD attendants and admissions
  - 796 malaria incidence per 1000 employees
  - None-immune persons (expats) are very vulnerable when infected
  - Number 1 cause of absenteeism resulting in loss in productivity at work and school
  - Monthly treatment cost in excess of USD12,000 for the Chirano workforce alone

- Contributing to and initiating malaria control projects in our operational areas is regarded as the best sustainable CSR (corporate social responsibility) initiative.

- It makes good economic sense:
  - a “win-win” strategy where both the community and the mine benefit.

- The Objective - to reducing malaria morbidity, transmission and its economic impact on the mine and the communities within and around the Chirano Mine operations by 80% by 2015
Available Options to Control Malaria

**Vector Control**
(e.g. IRS, Larviciding, ITNs usage, repellents, space spraying, environmental management, improved housing)

**Disease Management**
(i.e. diagnosis & treatment)

**Disease Prevention & Vaccines**
(e.g. Prophylaxis, IPTs for pregnant women & children <1 year)

**Genetic Modifications**
(e.g. sterile mosquitoes)

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**MALARIA TRIANGLE**

- Man (Host)
- Anopheles mosquito (Vector)
- Plasmodium (Parasite)
The Chirano Mine Approach

- To implement an integrated malaria vector control programme in the Chirano area based on a strong scientific foundation
  - Baseline entomological and epidemiological studies were conducted
  - Training facility (Swathe wall) for IRS constructed
  - Insectary & Laboratory facility constructed to enhance entomological/parasitological monitoring & evaluation (M&E) and operational research
  - Partnerships with MoH/GHS/NMCP, BABDA/SWDA and the community

- The programme started in September 2008 as a Mosquito Abatement Project and developed into the fully integrated malaria control programme, CMCP Phase I (May 2009-Dec 2011 – initial operational cost of USD1.4million) with 13 beneficiary communities within the Bibiani-Anhwiasono-Bekwai and the Sefwi Wiawso Districts (BABDA & SWDA).

- CMCP Phase II commenced in April 2012 based on the success story of Phase I (with an operational cost of USD1.8million for 3yrs)
Satellite image of beneficiary communities under the CMCP
CMCP Implementation Strategies
The Chirano Gold Standard

Vector Control
- Indoor Residual Spraying (IRS)
- Targeted larviciding
- ITNs/LLINs usage

IEC/BCC & Health Promotion
- IEC on malaria causes, transmission & mosquito biology
- BCC/Health promotion towards personal protections measures such as use of repellents, ITNs/LLINs, screening at homes & environmental management

Disease Management
- Early, Effective Diagnosis & Treatment
- IPTs for Pregnant women
- Prophylaxis

Monitoring, Evaluation & Research
- Vector biology & transmission dynamics
- Insecticide resistance
- QC & Efficacy Bioassays
- Parasite prevalence
- Malaria Control Information System (MCIS)
The Role of IRS

- A leading vector control intervention in the CMCP
- Decision based on baseline entomological studies
  - Major vectors: *An. gambiae* s.s and *An. funestus* s.s
  - Vector behaviour: *Anthropophagic; endophilic*; and rest on intra-domiciliary walls, wall hangings, furniture (behind/beneath) after feeding making them susceptible to indoor treatments
  - Insecticide susceptibility status: vectors susceptible to some classes of insecticides (e.g. Organophosphates and carbamates) and moderately susceptible to some pyrethroids (e.g. deltamethrin, cyfluthrin and alpha-cypermethrin)
  - IRS has a proven record elsewhere of being effective against *Anopheles* vectors
- Intra-domiciliary wall treatment twice yearly (every 6 months) with WHOPES-approved insecticide formulations to provide protection from infective malaria vectors during the two main transmission seasons
- Application carried out by well trained spray operators in accordance with;
  - WHO guidelines
  - manufacturer’s recommendations
  - National and programme-specific SOPs
- On-going quality control and personnel appraisal to ensure quality of implementation to the highest standard
  - Strong M&E/operational research to enhance evidence-based decision making
PPP Engagements

• National level – NMCP/GHS/MoH, WHO Country Office
  – *Malaria Vector Control Oversight Committee* (MaVCOC)
    • Initial consultative meetings with the MoH through the NMCP to discuss the malaria control initiative by the mine and to solicit for their support - *its rationale and objectives*
    • Join MaVCOC for information exchange to better the service delivery
    • Contributed expertise in the development of national malaria control strategic document, national SOPs on IRS and national malaria control M&E plan
    • NMCP and WHO Country Office participated in the official launching of the CMCP

• District level – DHDs, DEDs, DHIOs/DDCOs
  – *Malaria Control Stakeholders Committee* (MCSC)
    • Initial consultations and obtaining consent
    • Follow-up meeting for information sharing to foster effective implementation and improve community participation
    • Provision of district- and community-based malaria morbidity data for effective M&E
    • Supervise and assist in the conduct of malaria parasite prevalence surveys and other epidemiological and entomological surveys

• Community level – Assembly Members, Chiefs & Opinion Leaders, CHOos, Civil Society Groups
  – *Community Consultative Committee* (CCC)
    • Initial consultations and obtaining consent
    • Follow-up meeting for information sharing to improve community participation
    • Community mobilization and sensitization campaigns

• Programme level – Malaria Control Community Advocates, Programme IEC/BCC Team
  • Ensure beneficiary communities are properly educated on the malaria transmission and control
  • Ensure that householders are notified prior to the field implementation activities
CMCP Outcome & Impact

• Phase I (2009-2011)
  – *Chirano Community Clinic*
    • Malaria in OPD attendance reduced by 48.2%
    • Malaria incidence by 53.3% in 2011.
  – *CGML Workforce*
    • % Malaria in OPD attendances declined by 74.5% (3.9-fold) reduction.
    • Confirmed malaria incidence reduced by 44.7%
    • 80% reduction in overall malaria incidence (*per 1000 employees* based on clinical cases)
    – 76.5% reduction in *indoor mosquito biting rate (iHBR)* at the interventional area

• Phase II (2012-ongoing)
  – *Chirano Community Clinic*
    • % Malaria in OPD attendance reduced by 42.0%
    • Malaria incidence by 45.3%
  – *CGML Workforce*
    • % Malaria in OPD declined by 87.2% (7.8-fold)
    • Confirmed malaria incidence reduced by 31.7%
    • 78.2% decline in Overall malaria incidence (*per 1000 employees* based on clinical cases)
    – 69.9% reduction in iHBR at the interventional area
CMCP Phase II
(2nd Quarter 2013 Assessments – Major transmission season)

– CGML Workforce
  • % Malaria in OPD declined by 93.3% in 2012
  • Confirmed malaria incidence reduced by 58.3%
  • 90.2% decline in Overall malaria incidence (based on clinical malaria)

– 92.4% reduction in iHBR at the interventional area
Challenges/Way Forward

- Malaria active case monitoring at the different health facilities to differentiate “imported” vrs local disease transmission.
  - About 60% of cases seen at the Chirano Mine Clinic are imported from non-intervention areas

- Explore financial resources to scale-up the CMCP to cover more communities within BABDA and SWDA.
  - Provide extra protection by creating a “shield” around the current coverage.
  - Reduce disease burden on the mine workforce (especially those residing outside the CMCP coverage but within BAB/SW districts e.g. Bekwai, Wiawso, Bibiani, etc.) and on the local populace within the CGML concessional areas).
Collaborations

Together we can make it happen