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Managing water adequacy, reliability and safety challenges through sustainable strategies in a mine-catchment community

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**DELIVERING WATER, SANITATION AND HYGIENE SERVICES
IN AN UNCERTAIN ENVIRONMENT**

**Managing water adequacy, reliability and safety challenges
through sustainable strategies
in a mine-catchment community**

John Baidoo, Ghana

BRIEFING PAPER 1776

Newmont Mining Corporation (Denver, U.S.A.) is the parent Company of Newmont Ghana Gold Limited that operates in the Brong-Ahafo region of Ghana. This information is picked from the Ahafo site of the Company in a town called Kenyasi, comprising three suburbs; namely, Kenyasi # 1, Kenyasi # 2 and OLA resettlement. The operations of Newmont resulted into population influx. Pressure on water supply systems became very great, amidst other challenges. At OLA resettlement, residents also faced problems regarding the quality of the water. These circumstances led to agitations and road blocks which normally prevented Company vehicles from working. Newmont's timely assessment and attention to the challenges resolved all the issues.

Background

Newmont Ghana Gold Limited operates in two mine sites, namely; Ahafo and Akyem in the country. As part of its social responsibility and mitigation initiatives, the Ahafo site of the Company has supported the construction of small towns pipe water supply systems in a town called Kenyasi at Ahafo – a community comprising three major suburbs; namely, Kenyasi # 1, Kenyasi # 2 and OLA resettlement community. Key challenges encountered centered on water inadequacy due to population explosion, (The population has increased from 13,050 in 2008 to 20,568 in 2010 (according to 2008 Socio-economic monitoring survey, Ahafo Gold Operations, Republic of Ghana, December 2008 and 'Water Engineering Services to review water supply systems in Asutifi'- June, 2010) , water safety and reliability, community management difficulties as pertained to support for tariff setting and revenue generation, poor water quality and frequent breakdowns of systems at the resettlement community resulting into demonstrations, road blocks to mine trucks and vehicles and threats to life were the key events encountered. Current population comprised Kenyasi natives, Newmont mine workers and illegal mining workers.

The community had drilled boreholes with submersible mechanized pump which have been developed into small towns pipe water supply systems. The first two suburbs had a common system, whilst OLA resettlement has its own pipe water supply system faced with poor water quality due to elements of clay in the water, always making it appear yellowish and turbid

Objectives of the paper

The objectives of this presentation are as follows: Strategies adopted to confront challenges identified, the outcome of adopted strategies in project implementation and all the lessons gathered before, during and after implementing all resolving initiatives.

Key challenges, proactive steps and outputs

An initial assessment of the seven (7) bolded challenges below was carried out by "Savanstar Limited on "Water Engineering Services to review water supply systems in Asutifi" (June, 2010). Proactive steps were

taken as outlined in addition. Table 1 for example, shows the analysis on water demand over a fifteen (15) year period.

- **Inadequate water supply** was experienced in all the sections of the Kenyasi community, simply because there was population explosion, frequent breakdowns of systems at Kenyasi # 1 and 2 and OLA resettlement. There were two main small towns pipe water supply systems, one for OLA and the other for Kenyasi # 1 and 2 suburbs. The abstraction facility of the water supply system at OLA resettlement community was decommissioned and the main transmission line was integrated into the upgraded Kenyasi system (Newly-constructed abstraction system with submersible pump in a 200m deep drilled borehole, with higher pumping capacity). Water quality and quantity challenges were thus resolved.
- **Infrequent power supply;** training needed to be carried out on effective management of the facility; The local government authority and the community liaised with the government institution in charge of electricity supply on information regarding power rationing schedules so as to plan their operations accordingly
- **Operation and Maintenance (O&M) issues;** lack of funds, unrealistic tariffs set, unrealistic budget for O&M hence delaying routine and periodic maintenance efforts. Unrealistic tariffs meant water was sold far below the required price; unrealistic budget is meant the budget sum was also too small to cater for effective operation and maintenances. Tariff had to be raised to nearly 100%.
- **Dissemination of Information;** no appropriate means of disseminating information to members of the community. Community annual forum, education, sensitization were therefore organized. Community information services for announcements, education, etc were considered as media of information.
- **Financial reporting challenges;** Training for account clerks on record keeping and reporting was implemented.
- **Technical support to boost adequate water supply;** Replaced 18meter cube pumping capacity to 59.0 meter cube pumping capacity; integration to OLA resettlement site; 100kva transformer was replaced with 200kva transformer.
- **Management re-organization;** The Water and Sanitation Management Team was reconstituted and provided training; the upgraded facility was handed over to the Local Government institution and the community
- Monitoring and evaluation system was put in place.

Table 1: Population projection and water demand (source: 'Water Engineering Services to review water supply systems in Asutifi'- June, 2010) This projection was made after the population explosion								
No.	Community	Population			Water Demand (m ³ /day)			Reservoir capacity (m ³)
		Present (2010)	10 year projected (2020)	15 year projected (2025)	Present	10 year projected	15 year projected	
1	Kenyasi No. 1	8,256	11,095	12,863	280	376	436	270
2	Kenyasi No. 2	10,138	13,625	15,795	343	462	535	
3	OLA Resettlement	2,174	2,922	3,387	74	99	115	140
Total		20,568	27,642	32,045	697	937	1,086	410

Intervention outcomes

Following the implementation of recommendations from initial assessment and feasibility of the situation, the bulleted points below constituted the outcomes.

- Adequate, safe and a more reliable water enjoyed by community members
- Improved understanding demonstrated by community members in community ownership, operation and maintenance of the water supply system, especially in the resettlement community
- Company reputation with the Local government authority and communities highly enhanced; resulting into a cordial relationship.
- Water complaints and grievances drastically reduced.

- Water-related diseases drastically reduced among both community members and staff of company, thus preventing absenteeism caused by water-related disease attacks, such as diarrhea.
- Upgraded Kenyasi small towns pipe water supply system (integrated to OLA resettlement water supply system) handed over to the Asutifi North District Assembly and the community to fully own, operate and manage
- Reduced complaints related to water adequacy, safety and reliability
- Improved health conditions for community members and Newmont staff living in the beneficiary communities, such as reduction of water-related diseases and led to savings from reduced absenteeism
- Reduced community disruptions caused by inadequate, safe and reliable water supply
- Provided full support to women in the reduction of water fetching - related workload and children punctuality at school
- Communities have exhibited improved cooperation with the Company in its operations
- Enhanced Newmont's reputation and credibility to sustain social license to operate
- Improved the Company's image as a good Corporate partner and operating in an atmosphere devoid of tension, fear and panic
- The local government authority and the community have also welcomed the Company's collaborative plan to further improve water quantity through the mechanization of a **200m** deep borehole and construction of **140m³** capacity overhead reservoir to serve the inhabitants of Kenyasi. Project implementation is scheduled between quarter 1, 2013 and quarter 4, 2014.
- Before the integration, Newmont shared maintenance costs with inhabitants of the resettlement community and thus bore hundred percent cost of crisis maintenances which seem to be the highest among all maintenance costs. The resettlement community which had its own management bodies, bore the costs of routine and periodic maintenances only, because they are vulnerable and poor. With the integration, the community now comes under the Kenyasi Water and Sanitation Management Team which is currently managing all the three levels of maintenances for the three suburbs. The Company has saved some costs having been relieved from bearing the cost of crisis maintenances.

Lessons learnt

Newmont Ahafo site has, of course, noted its lessons to guide future challenges and hurdles, as outlined below.

- Effective coordination and facilitation in the provision of water supply systems enhance partnerships that lead to transparency, ownership and management of all other sustainable community development projects. Moreover, project goals, objectives and targets are often attained.
- A Company, an Organization or any Institution which gives priority to the demonstration of its social responsibility in the provision of infrastructure, such as water, always receives the necessary co-operation and support from the local government authorities and communities in its operations.
- Initial feasibility studies and other forms of assessments into existing situations enable project implementers to execute projects realistically and ensure adequate involvement and participation by all relevant stakeholders.
- Improving collaboration with both external and internal stakeholders, such as the National Community Water And Sanitation Agency (CWSA), Environmental Protection Agency (EPA), Local Government authorities and beneficiary communities guarantees the sustainability of local infrastructure. Community Water and Sanitation Agency (CWSA) is the agency of the Republic of Ghana charged with the responsibility of coordinating the implementation of water and sanitation projects/programmes of small towns (with population of 5000 people and above) and villages in the country (with population of less than 5000 people). Environmental Protection Agency (EPA) is a regulatory agency in the country responsible for ensuring compliance to water, sanitation and environmental rules, regulations and standards as apply to project implementation.
- Capacity building for key stakeholders enhances efficiency and effectiveness that paves the way for sustained provision, monitoring and evaluation of adequate, safe and reliable water supply systems.

Conclusion

Newmont Ghana Gold Limited in collaboration with the local government authority and the community have managed to implement proactive measures to forestall challenges in water inadequacy, poor quality and threats to Company operations, among other issues. All parties have learnt their lessons and that are

poised to sustain every effort put into place and the water supply system itself as regards effective operation, management, operation and monitoring.

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Contact details

John Kofi Baidoo
Newmont Ghana Gold Limited-Ahafo site
Tel: 233-0244 332 804; 233-21-7011852 Ext. 51125
Fax: 233-21-7011855
Email: John.Baidoo@newmont.com
www: Newmont.com
