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TOPIC:

REGULARISATION OF SMALL SCALE MINING IN GHANA:
TECHNICAL APPROACH AND ITS SHORTCOMINGS

1.0 BACKGROUND

The regularisation of small-scale mining in Ghana began in 1989 with the setting up of a Small Scale Mining Implementation Committee comprising the Minerals Commission, Geological Survey Department and the Precious Minerals Marketing Corporation. This Committee was to oversee the implementation of a Project known as “The Regularisation of Small Scale Gold and Diamond Mining Project”.

The Committee’s tasks included the demarcation of eight (8) small-scale Districts with their Centres at Tarkwa, Enchi, Bibiani, Akim Oda, Assin Fosu, Dunkwa, Konongo and Kibi. This was followed up with the recruitment of qualified technical personnel (District Officers and Mine Wardens). By August 1989 the eight District Officers had been recruited. The District Centres became operational in September 1989 when the District Officers assumed duty in their respective Centres. Mines Wardens were later employed to assist the District Officers. All Centres were equipped with adequate logistics (motor bikes, 4 x 4 pick-ups and office and field equipment) to enable them carry out the functions set out in the Small Scale Gold Mining Law.

2.0 TECHNICAL APPROACH

2.1 Capacity building

The technical approach to regularisation began with the training of the field Officers. Prior to their departure to their Centres, a workshop on regularisation was held during which the provisions of the Small Scale Gold Mining Law, PNDC Law 218, which legalised small-scale gold mining, were fully discussed. There were discussions on the geology of Ghana and health and safety issues in small-scale mining. This had the aim of ensuring that the officers understood the relevant provisions of the law so as to interpret it correctly to the small scale miners and the general public.

These expositions prepared the Officers for the field. A number of other training packages have been delivered to the Officers while since 1989.

Some of these are:

- A field trip to Zimbabwe in 1991 to expose District Officers and Mine Wardens to experiences in small scale mining operations outside Ghana.
- Workshops and seminars in Project Planning and Monitoring have been held locally for the officers.
- Training manuals have been prepared in these disciplines and now serve as guides for officers.
- Training of Trainers courses have been organised in Environmental Management in Small Scale Mining, Basic Bookkeeping and cost calculations, and Health and Safety Issues in Small Scale Mining.
- Again in 1999, when new officers had been engaged, they also paid a visit to Zimbabwe to acquaint themselves with small scale mining operations there. The training and the two visits to Zimbabwe were facilitated through a grant from the German Government.
- Under the Mining Sector development and Environment Project, District Officers and some Mine Wardens benefited from four weeks' certificate courses in 'Project Planning and Management' in the United States of America in 1999 and 2000.

These training programmes have been undertaken to ensure that Officers are well prepared to deliver targeted technical extension services to small-scale miners.

3.0 TECHNICAL EXTENSION SERVICE DELIVERY AND TRAINING OF MINERS:

The most important task for the Extension Officers on arrival at their stations in September 1989 was the regularisation of the operations of small-scale miners. Incidentally, this also seems to be the most difficult task. Prior to 1989, all efforts had been made by Government to stop illegal gold mining. The use of the security agencies for this task had put the miners on the defensive. The regularisation concept was therefore viewed as a ploy to arrest the illegal miners through the “back door” and District Officers were being used for that purpose.

The fears of the miners were however dispelled due to continuous publicity by Government and the ingenuity of the District Officers who at times had to woo some leaders of the miners to drinking bars to fraternise with them and get the message across. This paved the way for an accelerated licensing of miners.

3.1 Technical services offered:

District Officers assist prospective small scale miners in the preparation of requisite documents (filling application forms, type of site plans) etc.

- They also carry out physical inspection of areas applied for to determine their suitability for small-scale mining and also to check on the conformity of the survey work with demarcations on the ground.

When work starts on a concession, the Officers pay regular visits to discuss the provisions of the Code of Practice, which has specifically been prepared for small-scale gold mining operations. The Code has seven parts relating to:

- The need for the appointment of a Manager to oversee operations if the concession owner cannot do so;

- The duties of the Manager so appointed which include ensuring safe operations on the concession.
- Surface protection;
- Protection of working places;
- Underground protection;
- Procedure in case of accident; and
- Penalty in the case of infringement of any of the above provisions

The Officers also look at the mining and processing methods, and offer advise where necessary.

Training of miners : The officers organised regular training using training manuals that have been prepared for this purpose. All miners so trained were issued with certificates of participation. This has however has been discontinued and preference given to the education on mercury pollution abatement.

ASSISTANCE SCHEMES FOR SMALL SCALE MINERS

Several assistance/support schemes have been implemented during this period of regularisation of small scale mining. However for the sake of this paper, only major ones will be discussed. These schemes were all aimed at improving on the operations of small scale miners thereby increasing their yield and improving on their well being. The idea was that where they were found to be suitable, appropriate they could be adopted for implementation. Some of these schemes include:

3.1 Rent a pump scheme

Following persistent complaints by miners that they had problems with water management in pits particularly in alluvial mining areas, a rent a pump scheme was instituted in 1991 to help them. As part of the German Government's assistance programme, "Promotion of Small Scale Mining in Ghana," through GTZ, ten water pumps (5HP) were purchased and stored at Tarkwa and Assin Fosu to be rented by the miner for use for a small fee. This system did not succeed due to the following reasons:

- The miners operated near rivers and water inflow was therefore very high. To ensure that the pits were without water the following day, they left the pumps working overnight. Since the pumps were too small for that duty, they soon gave way.
- The scheme was supervised by the District officers who could not visit the areas frequently because of their normal assigned duties. The miners, after working for several days, reneged on payment, claiming that the pumps broke down therefore worked for only a few days . The money realised could not purchase a similar equipment.

3.2 The Hire-Purchase Scheme

Following the failure of the renting system, the Minerals Commission contacted the Central Regional Development Commission (CEDECOM), which was implementing a hire-purchase system to fishmongers and small-scale farmers in the Central Region for advice. CEDECOM came out with a proposal that it would run the system for small-scale miners. An agreement was signed between the Minerals Commission and CEDECOM on July 16, 1993 for the implementation of the scheme to commence.

After three years operation, an internal review of the scheme was carried out on May 17, 1996. The miners indicated that they had been helped by the introduction of the scheme. The implementers of the scheme however cited the apparently low recovery rate (33.9%) as a failure of the scheme. A further review by external consultants hired by GTZ in 1997 confirmed the non-sustainability of the scheme. The under listed

reasons however indicated that other unfavourable factors played an important role in the dismal performance of the scheme.

- CEDECOM was actually dealing with fish mongers and small scale farmers, had no experience with mining projects and therefore did not know the risks involved in financing mining projects;
- CEDECOM was managing the scheme from Cape Coast, hundreds of kilometres away from beneficiary miners. This made the cost of operation of the scheme expensive and therefore supervision was ineffective
- The criterion for the grant of the facility was based on past performance of a miner's operations rather than evidence of the viability of the concession as a whole.
- Some of the equipment were found to be inappropriate for the operations.
- Inflation was too high for a financing instrument such as a hire purchase scheme where repayment period is up to one year.

CEDECOM was therefore left in a quagmire of either setting realistic interest rates, which will put the total cost beyond the reach of miners or set low rates and have the capital eroded.

The scheme was stopped and the money invested in other financial instruments to yield profit.

3,3 Pilot Testing of Hammer Mills

A Brazilian made hammer mill was brought to Ghana from Bolivia by BGR in 1998 to test at the Bolgatanga mining district. At the end of the test period, the hammer mill was found to be acceptable except that the frequent wear of the hammers were found to wear frequently making the operation rather expensive.

Chinese—made hammer mills that have been introduced into the country have been accepted and are now widely used.

4.0 MINING SECTOR DEVELOPMENT AND ENVIRONMENT PROJECT.

This was a major project for the mining sector, with a substantial portion going to small scale mining. The project start-up was preceded by a multi-sectoral workshop on Small Scale Mining in Ghana from July 12-13, 1994. It was attended by stakeholders in the mining industry (including 19 small scale miners). The World Bank was represented by Messrs. Leo Maraboli, Robert Nooter, Paul Bermingham and Ms Inju Hewawasam.

Mr. Maraboli, in his intervention, urged participants to reflect on the problems faced by small scale mining in Ghana at the time, and find suitable solutions to them. Brief presentations were made by the other World Bank Mission staff. Discussion at the workshop centred around four thematic issues:

- Technology, equipment and Geology
- Marketing and finance
- Environmental aspects
- Institutional strengthening and legal.

As part of the process of formulating the project, one District Officer and one gold miner were sent to the USA and Zimbabwe to study small scale mining equipment, identify some manufacturers of these equipment and propose those that will be suitable for the Ghana situation. The report of this group formed part of the Project Document.

The project eventually took off in 1996 with the following as the small scale mining component

4.1 Pilot testing of identified modules of small scale mining equipment

Both alluvial and hard rock processing equipment were purchased, installed and tested in two regions. The alluvial plants consist of washing trammels, shaking

tables, knelson concentrators etc. while the hard rock plants consist of crushers, ball mills, knelson concentrators and shaking tables. Some of the equipment are currently being used.

4.2. A programme to make better geological information available to small scale miners

Sixteen sites were selected and limited exploration work carried out. About 47% of the sites investigated were found to be suitable for small scale mining and have since been demarcated. More however need to be explored to ensure wider coverage.

4.3 Reclamation and rehabilitation of priority areas degraded through past Small scale mining activities.

Three degraded sites were selected for reclamation and reclaimed. While fruit trees have been planted at one of the sites at Bawdua, the remaining two have been re-forested. The reclamation was undertaken mostly with labour-intensive method, thus giving jobs to communities at the project areas.

5.0 MERCURY POLLUTION ABATEMENT PROGRAMME.

5.1 Studies Undertaken

Mercury is used by small scale miners to recover free gold from the concentrate. During the regularisation, the Mercury Law was amended to allow small scale gold miners to purchase limited quantities of the chemical necessary for their operations. Gold miners have therefore been using mercury for this purpose.

Cognizant of the dangers of mercury, the Minerals Commission and GTZ introduced metal retorts to small scale gold miners in 1993. The use of the retort was however not accepted by the miners. Some of the complaints were that the metal took too much time to heat. Secondly they did not know what was happening to their gold while in the metal container.

In 1997, Government applied to the United Nations Industrial Development Organisation (UNIDO) for assistance to determine the extent of mercury exposure as a result of its use by small scale miners since the miners had been using the chemical without any protection. The request was granted in 1999, when the French government provided funds. A project, “ Assistance in Assessing and reducing Mercury Pollution Emanating from Artisanal Gold Mining in Ghana” was therefore started at Dumasi, an illegal small scale mining village in the Western Region.

The results of the report of the study indicated that there was a strong evidence of mercury exposure among Dumasi population. Since Dumasi operations were purely for hard rock, it was agreed that a second study be carried out in an alluvial area where small scale miners heat their amalgam in the field.

A second phase of this project was undertaken at Japa also in the Western Region in 2002. The results of this phase have just been released and seem to follow the same trend.

5.2 Education and Training

The education of miners on the dangers of mercury and the need to handle the chemical with care started with the start of the regularisation scheme. Miners have been advised to use hand gloves while handling mercury, and to practice personal hygiene. The education intensified with the results of the studies mentioned earlier. The education now takes the form of durbars where the miners and the whole communities are shown films on the effects of mercury, followed by awareness campaign and a demonstration on how the retort is used. It is hoped that with awareness creation, the communities will resist miners burning amalgams in their houses. The introduction of the glass retort has increased the understanding of miners on the working mechanism of the retort. Of course there are complaints of its cost, fragility, smallness of the heating chamber and that the gold at times gets stuck in the chamber.

6.0 SHORTCOMINGS OF THE TECHNICAL APPROACH

From the litany of interventions enumerated, it is evident, with the exception of the training aspect, that most of them were either pilot schemes or tests that were carried out for specific reasons. Any shortcomings are therefore considered as part of the learning process. The most important aspect should then be what has been learned, and what should be done to ensure that the implementation of future programmes are improved upon

7.0 LESSONS LEARNED

Several lessons have been learned from the implementation of the regularisation of small scale mining in Ghana since 1989. The various interventions by Government have proved useful. The following examples are cited:

7.1.Hire Purchase Scheme.

This scheme was actually introduced as an assistance package CEDECOM could therefore not fix realistic interest rate to ensure sustainability. The evaluation of the scheme was however carried out as if it was a commercial undertaking. Future schemes should therefore make such distinctions.

7.2 Site Selection

A review of past exploration work by exploration companies should be undertaken to select promising sites. This will increase the success rate.

8.0 CONCLUSION

Since the regularisation in 1989, several schemes have been introduced to improve upon the operations of the miners. There have been both successes and failures. The failures have served as learning lessons which have enabled us to review our approach to the introduction of assistance packages to the miners.