

## **CASM ANNUAL GENERAL MEETING AND LEARNING EVENT**

ATTEMPTS TO BREAK THE MOULD - CONSTRUCTIVE INTERVENTIONS IN AFRICA  
*Capacity Building for artisanal mining in Burkina Faso*

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## **BURKINA FASO ASM - HISTORICAL OVERVIEW**

- ASM in Burkina Faso dates back to 15 century
- Expanded in 1967 - nugget discovery by a shepherd
- In 1974 activities expanded due to drought in Sahel
- 1980 - increased activity and races for gold
- 1984 - first organized SSM project by government
- 1986 - CBMP set up to buy precious mineral
- 1988 - Filiere Or set up
- 1991 - CEMOB Gold Mines Exploitation
- 1995 - Ministry of Mines set up
- 1995 - Mining declaration with emphasis on SSM
- 2003 - New mining code with consideration for ASM/SSM

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## ASM ACTIVITY IN BURKINA - CHARACTERISTICS

- ESTIMATED NUMBER OF ARTISANS 100,000 - 200,000
- MORE THAN 200 ACTIVE SITES
- ISSUES:
  - INSTITUTIONAL WEAKNESS TO DEAL WITH ASM
  - CONFLICTS - LAND, MIGRANTS & LOCALS, ETC.
  - SOCIO-ECONOMIC PROBLEMS
  - HEALTH, SAFETY & HYGIENE
  - CRIME & INSECURITY
  - PROSTITUTION & DRUG ADDICTION
  - HARD WORKING CONDITIONS AND ACCIDENTS
  - ENVIRONMENTAL PROBLEMS INCLUDING DEGRADATION
  - ORGANIZATIONAL PROBLEMS

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## THE CONDUCT OF MINING AND PROCESSING

- MINING
  - PITTING AND GALLERY DEVELOPMENT TO REACH ORE
  - MANUALLY BREAKING ORE OR BLASTING
  - HAULING ORE IN SACKS WITH ROPE
- TRANSPORTATION
  - DONKEY, BICYCLE, HEADPAN ON FOOT
- PROCESSING
  - MANUALLY CRUSHING
  - HAND SIEVING
  - SLUICE WASHING FOR GOLD RECOVERY
  - WINNOWING DRY MATERIALS

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METHODE D'EXPLORATION ARTISANALE FINI PUIS ET TRAVICHEE



Site d'exploitation de Akpa derrière de la ville de Juba



Creusement manuel de puits à sondages verticaux. On ne s'arrête

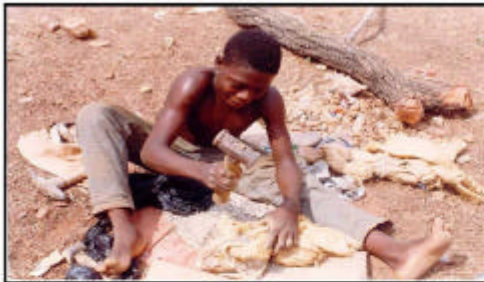


Puits à section carrée en voie de soutènement



Puits sans soutènement de forme d'attente pourment de la forêt du site de Sosso

TRAITEMENT ARTISANAL DE L'OR



Concassage manuel du minerai



Pilage du minerai concassé



Broyage du minerai pilé

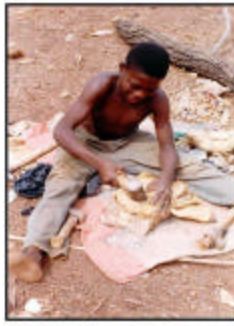


Levage du minerai au sludge avec artisanal (20% de récupération)

SECURITE DU TRAVAIL



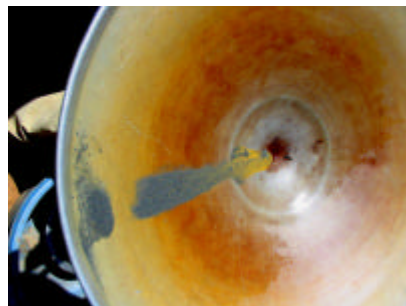
Descendre dans un puits sans casque ni gants



Contreminage sans de gants, pas de lunettes ni masque



Terminaux exposés à la poussière



## STATISTICS OF LICENCES

YEAR	NUMBER OF LICENCES	
• 1993	01	
• 1994	13	
• 1995	03	
• 1996	05	
• 1997	09	
• 1998	01	
• 1999	03	
• 2000	03	
• 2001	16	
• 2002	21	
• 2003	19	56 DURING 2001-2003
<b>TOTAL</b>	<b>94</b>	<b>59 ARE CURRENTLY VALID</b>

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## GOLD PRODUCTION STATISTICS - CBMP

YEAR	ASM GOLD(KG)	OFFICIAL EXPORTS	%ASM
• 1995	945	1896	49.8
• 1996	769	1460	52.7
• 1997	944	1072	88.0
• 1998	951	1097	86.7
• 1999	738	869	84.9
• 2000	515	606	85.0
• 2001	209	212	98.6
• <b>TOTAL</b>	<b>5071</b>	<b>7212</b>	<b>73.3</b>

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## RECENT ORGANISATION FOR ASM IN BURKINA

- GOVERNMENT OF BURKINA FASO IS IMPLEMENTING A WORLD BANK PROJECT WITH ONE COMPONENT DEVOTED TO SMALL SCALE MINING - THE SPECIFIC EMPHASIS OF A SUBCOMPONENT IS IMPROVEMENTS IN ARTISANAL MINING.
- PRECAGEME - "PROJET RENFORCEMENT DES CAPACITES NATIONALES DU SECTEUR MINIER ET LA GESTION DE L'ENVIRONNEMENT"

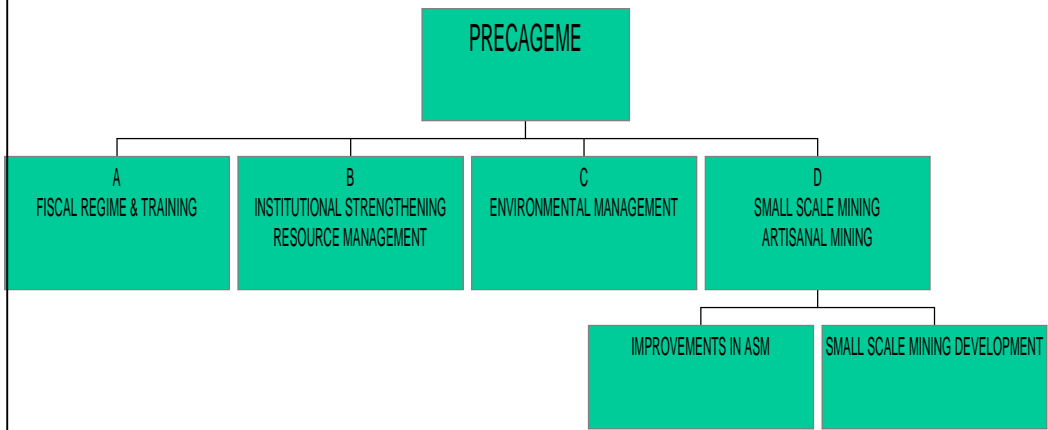
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## OBJECTIVES OF PRECAGEME

- CREATE AN ATTRACTIVE ENVIRONMENT FOR PRIVATE INVESTMENTS AND GUARANTEE A REAL AND SUSTAINABLE DEVELOPMENT
- REINFORCE PUBLIC AND PRIVATE CAPACITY TO MANAGE EFFICIENTLY REGULATIONS AND BUILD NATIONAL CAPACITY FOR ENVIRONMENTAL MANAGEMENT
- IDENTIFY AND ADOPT SUITABLE MECHANISMS TO HELP THE DEVELOPMENT OF ASM, IMPROVE MINERS SOCIO-ECONOMIC, HYGIENE CONDITIONS AND ENVIRONMENTAL MANAGEMENT

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## COMPONENTS OF PRECAGEME



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## CAPACITY BUILDING

- FOR WHOM?
  - Government
  - ASM Operators
  - Communities
  - Investors
  - NGOs
  - Consultants
- IN WHAT? - technical, financial, environmental, health, safety & hygiene, .....
- BY WHOM? - all above
- HOW? - various (including field visits, education & sensitization, demonstration, etc.)

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## ASM IMPROVEMENT COMPONENTS

- STRENGTHENING OF INSTITUTIONS TASKED WITH PROMOTING SSM
- SOCIO-ECONOMIC, GEOLOGICAL AND ENVIRONMENTAL EVALUATION OF ASM/SSM SITES
- SURVEY AND EVALUATION OF FINANCING MECHANISMS AND CAPACITY TO ASSESS MINING PROJECTS
- ORGANISATION OF A SENSITISATION AND EDUCATION CAMPAIGN IN ENVIRONMENT, HEALTH AND SAFETY
- STUDY AND PILOT TRIALS OF LOCALLY FABRICATED EQUIPMENT

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## ASM PROJECT OBJECTIVES

- STRENGTHEN INSTITUTIONS TASKED WITH PROMOTING ASM
- IMPROVE THE ORGANISATION OF ASM OPERATIONS
- PROMOTE THE USE OF APPROPRIATE EQUIPMENT IN THE SECTOR ASSURING ADEQUATE TRAINING TO ASM OPERATORS
- PUSH FOR THE SEARCH OF SOLUTIONS TO THE FINANCING OF ACTIVITIES IN THE ASM SECTOR

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## ASM Improvements

STUDIES AT SITES & INSTITUTIONS				
INSTITUTIONAL CAPACITY	SOCIO-ECONOMICS, GEOLOGY, ENVIRONMENT, HEALTH, SAFETY	FINANCING MECHANISM	EDUCATION & SENSITISATION	PILOT TRIALS LOCALLY FABRICATED EQUIPMENT
assess capacity - pub/private assess manpower needs for ASM	geological evaluation improved geology for ASM	collect, analyse and assess data constraints to funding	Content and mode of sensitisations Design package and agent training	Inventory of equipment used materials used to fabricate
prepare assistance package for small scale mining	mining and extraction systems review and assessment	Identify actions required from study to ease funding	Conduct sensitisations Health - Safety & hygiene	Select appropriate equipment Assess use and complexity
propose org. structure to assist SSM/ASM develop	collect, analyse and assess data legal issues	devise training needed for doc prep to secure funding	Conduct sensitisations Environment	Cost equipment fabrication Conduct cost-benefit analysis
organise training for institutions -pub/private to deliver ASM help	health, safety, hygiene, environment	devise training for : mine econ., risk-benefit, cash flow	Conduct sensitisations Socio-economics & finance	Identify local fabricators, promoters
strengthen mines inspection ability to monitor training & inspect	classify test sites - suitability for further tests/improve.	design Tech. Assist to establish microfinance inst. & sensitisation	Conduct sensitisations Linkage of disciplines	design training and support Local fabricators, users

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### **Institutional Study and strengthening of all public and private structures tasked with the management and promotion of ASM**

- Detailed and critical examination of the policy on ASM and the mandates of all institutions dealing with Artisanal and small-scale mining.
- Conduct of a workshop to communicate the findings of this study highlighting the inconsistencies in policy, duplication of effort and resources.
- A proposal of new institutional arrangements has been presented to stakeholders during December 2002 calling for a decentralized approach based on successful experiences from Ghana.
- Inspection guidelines developed for training and field application
- Study tours to Ghana were conducted to study experiences of the Minerals Commission, PMMC and ministry of Mines. Visits to private mining operators and industries that use minerals.

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### **Geological, mining, processing, socio-economic and environmental and health and safety studies of selected ASM sites:**

- Study of selected ASM sites in Burkina Faso covering geology, technology use (mining and processing), environmental awareness and management, health, worker safety and hygiene. Studies also examined in detail the socio-economic conditions at ASM sites.
- There appears to be a gap between the institutions tasked with promoting the conduct of ASM and ASM operators (ASM operators lead and governments tend to chase).
- The study is proposing strategies of creating a more positive working relationship where government policy and action will not only be seen as reactive but rather proactive and helpful.

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### **Survey of financing mechanisms for ASM and their promotion**

- A detailed survey of the available local and external sources of finance for ASM was conducted and a multi-stakeholder workshop held to report the findings and sensitise various actors.
- The availability of financial resources influences the extent of ASM activities, their performance and productivity.
- The issue of local pricing of gold (relative to the World market price) should be examined with a view to propose a fair mechanism that will benefit all parties and minimise fraudulent dealings.
- Several financial institutions are interested in assisting the sector and are in contact with the Ministry and the Consultant on how to proceed. Most require a guarantee.
- The CDE has funded 8 projects following representations from the workshop

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### **Sensitisation and Education campaigns on geology, mining processing health, safety and environment at selected ASM sites in Burkina Faso**

- Pertinent messages were derived from studies for the use in sensitisation and education campaigns:
  - Theatrical presentation in local languages and in French - covering worker safety and hygiene, environment, and organisation.
  - Screening films on worker safety and HIV/AIDS; and
  - Use of local TV programs (a TV documentary is also finalised).
  - Demonstrations of mining, processing and recovery
- The aim of these sensitisations is to create better living conditions for ASM operators and open avenues for communities to seek and solve problems locally.
- Initial feedback from these activities indicate that some improvements have been achieved as a result of the exercises.

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### **ASM equipment survey and promotion of local equipment fabrication and testing**

- Successful promotion of locally fabricated crushers, hammer mills and small trommel mineral processing equipment(pro prospector II) - these are currently being used in Ghana and in Burkina Faso.
- Site visits and demonstrations of appropriate mining and processing.
- On site training of trainers in panning, sluicing and operation of installed equipment
- Safe mining and processing principles are being applied - use of retired underground practical miners from Ghana to help operators develop mine access and plans. Safety training is also included in these exercises.

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## EQUIPMENT PERFORMANCE ACHIEVED

DESCRIPTION	OLD SETUP	IMPROVED EQUIP.
NO OF DAYS	1	1
TONNAGE TREATED	0.5	3.5
AVERAGE TREATMENT COST IN US\$/T	175	55
BREAK-EVEN GRADE (USE \$340/OZ)	16	5
GOLD RECOVERY	35%- 45%	70% - 75%

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## Other dimensions of improvement

- Alternative Livelihood issues & links
  - mining -agriculture;
  - mining-other income generating activities and
  - mining-agro-industry
- Installation of hygiene facilities at mining sites
- Provision of potable water via borehole development at mine sites
- Children management at ASM sites:
  - At Alga in Burkina Faso provision of a secure BABY/CHILD sitting facility with guardians that monitor children away from dust and other mining activities.
  - Women's groups and all site associations and community groups are managing this exercise. The cooperative is contributing about 60,000 fCFA (\$100) monthly to this exercise.

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## ELEMENTS OF IMPROVING CAPACITY

### Areas of Concern

- Institutional capacity
- Improved geology
- Environmental management
- Health, safety & hygiene
  
- Mining techniques
- Processing technology
- Equipment fabrication
- Living conditions
- Work organization
- Permits for ASM

### Outcomes recorded/noted

- Proposal to implement
- Seen as essential to success
- Improved awareness
- Awareness increased and good practices noted
- Better tools awareness created
- Improved recovery recorded
- Local capacity being realised
- Noteworthy improvements
- Cooperation enhanced
- Numbers increasing as reported

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## MULTIDISCIPLINARY TEAM APPROACH

- GEOMAN has a multidisciplinary team of personnel who have worked on this project. These have been from mining engineering and mineral processing, geology, sociology, environment, community health, communication, micro-finance, legal and the agriculture fields.
- Use of the local knowledge of ASM artisans and their communities is a significant input into the solution of local problems.
- Small and incremental improvements in the ways artisans conduct their work yield solutions that are appreciated and last long - this involves listening to the ASM operators and their community. The process is slow and requires a good deal of patience.