

## African Mining Observatory (AMO): An initiative to support a sustainable management of mineral resources in Africa

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### SUMMARY

For the African continent promoting a sustainable utilization of its mineral resources could be considered as a key determinant to fight against poverty. Sustainable development performance indicators for measuring the economic, environmental and social impacts of mining activity are necessary for drawing up policies and sectoral actions, identifying and controlling risks, identifying and implementing sustainable development actions, negotiating between stakeholders, improving mine production, etc. To respond to this need, the SIGAfrrique Network proposed to develop a joint decision support tool entitled the African Mining Observatory (AMO) and, to this end, develops a system of indicators to be integrated within the SIGAfrrique database. The development of both the OMA and the indicators is based on a participatory method within the working groups, which comprise experts/participants from the 13 SIGAfrrique partner and observer countries (Guinea, Burkina Faso, Mali, Tanzania, Niger, Mozambique, Kenya, Uganda, Senegal, Angola, Madagascar, Ethiopia, and Mauritania).

### 1. THE SIGAFRIQUE NETWORK PILOT PROJECT

The aim of the SIGAfrrique Network is to contribute to the effort to reduce poverty by developing regional African policies, based on the enhancement and diffusion of Earth Science information on the African continent, and making this known to the world. This information is destined to i) promote all African subsurface resources, whether mineral or hydrogeological, ii)

help assess the impact of mineral resources on Africa's socio-economic development, and iii) strengthen skills of the national geological surveys (BRGM and Sigafrique partners, 2006).

The SIGAfrrique network project (March 2003 - December 2005) was funded by the French Foreign Office (MAE), coordinated by CIFEG (International Centre for Training and Exchanges in the Geosciences) and run by BRGM (Milesi and Lescuyer, 2004). The main objective was to create a network of partners to enhance and diffuse geological information so as to support sustainable development across the African continent. A geoscientific digital information system was thus shared between the African project partners, representing 11 countries, namely six in West Africa (Burkina Faso, Guinea, Mali, Mauritania, Niger, Senegal) and 5 in East & Central Africa (Ethiopia, Kenya, Tanzania, Madagascar, Angola), plus two African regional centres: SEAMIC (Southern and Eastern African Mineral Center) and UEMOA (West African Economic and Monetary Union). Two additional countries, Uganda and Mozambique, joined the network in 2005. During the running of the project, two focal points were host to some 20 workshops bringing together about 50 participants, one at Ouagadougou in Burkina Faso and the other at Dar-es-Salaam in Tanzania, thus enabling training and scientific research activities, particularly dedicated to the subjects of 'Water' and 'Mineral Resources'. A Website has been created: [www.sigafrique.net](http://www.sigafrique.net).

The aim of the SIGAfrrique network, in the medium term, is to become 'Panafriquean' by uniting geoscientists across the continent around a project to enhance African georesources, based on common terminology and the promo-

tion of joint research and development actions. Many European and African geological surveys are committed to seeking the necessary funding to see this Panafrican project get off the ground.

## 2. NEEDS OF AN AFRICAN MINING OBSERVATORY (AMO)

The mineral resources are at the forefront of societal concerns. The worldwide demand is rising, but economic, environmental and societal impacts induce controversies and a negative image of the mining industry. Stakeholder's panel and need for information increased with the arrival of sustainable development principles. Considering its major mining and development potentials, Africa is coveted by mining companies renewing their mineral exploration. For the African continent promoting a sustainable utilization of its mineral resources could be considered as a key determinant to fight against poverty. However, management is impossible without knowledge. Sustainable development performance indicators for measuring the economic, environmental and social impacts of mining activity are thus necessary for drawing up policies and sectoral actions, identifying and controlling risks, identifying and implementing sustainable development actions, negotiating between stakeholders, improving mine production, etc. To respond to this need, the SIGAfrrique Network proposed to develop a joint decision support tool entitled the African Mining Observatory (AMO) and, to this end, develops a system of indicators to be integrated within the SIGAfrrique database.

Using reliable indicators and factual data to document and analyze the complex relationships that exist between the mining development and the sustainable development of a country or region, the aim of the AMO is to contribute to the fight against poverty on the African continent through promoting a sustainable utilization of its mineral resources.

## 3. AMO'S PHILOSOPHY

The development both of the AMO and of the indicators is based on a participative method within the working groups, which comprise experts/participants (cf. list in the acknowledgments) from the 13 SIGAfrrique partner and ob-

server countries. The first week-long workshops took place in November 2004 at UEMOA (Ouagadougou, Burkina Faso) for the West Africa experts and at SEAMIC (Dar es Salaam, Tanzania) for the East African experts and then later, in June 2005, at CIFEG (Orléans, France) for all the participants. Their purpose was to:

- Reflect on the concept of sustainable development applied to the extractive industry in Africa and assess the position of mineral resources and the attendant issues at stake with regard to the African continent;
- Introduce the principles of drawing up indicators and look at international initiatives concerning indicators of sustainable development, especially those within the sector of the mineral industry (Chamaret et al., 2005);
- Define and clarify the outline and objectives of the new decision-support tool represented by AMO by pooling the different national back experiences;
- Work on drawing up sustainable-development indicators applicable to the mining industry in Africa from a common list of candidate data;
- Reflect on the means and scales of using the SIGAfrrique information system to both collect and use the information required for AMO to operate.

## 4. DRAWING UP OF INDICATORS

Identifying the data and the variables to be measured was realized during workshops following different stages. First stage was to define issues that participants thought to be relevant for mining activity. Then each issue was associated with objectives and scales of measurements. At last, parameters for measuring these issues were identified. Their selection was based on the working groups' judgments about their relevancy, their accessibility and their exploitability (giving them a priority of 1, 2 or 3). At the end of this first stage, 81 priority 1 and 28 priority 2 variables were selected within the Economy, Social, Environment and Governance domains (Table 1). Environmental and social data are by far the most common. This is not surprising for the environment theme which is generally well regulated, the most documented and often the easiest to tackle in the context of sustainable

Table 1: Distribution of the selected variables in terms of domain, fields and measures.

DOMAIN	FIELDS	MEASURES	VARIABLES	EXAMPLES
ECONOMY	Taxation, Salaries, Markets, Finance, Transport, Production	Cost, Production, Profits, Investment, Revenues, Subcontracting, Taxes	15	Amount of produced ore/metal, Amount of exploration investment, Royalties
ENVIRONMENT	Air, Biodiversity, Energy, Management, Pollution, Products, Soil, Waste, Water	Gas emission, Flora, Fauna, Consumption, Skills, Safety, Quality, Post-mining, Qualification, Noise, Toxicity, Occupation, Rehabilitation, Quantity	28	Total amount of fuel consumption, Distance of the site from a protected area, Size of the concession area, Quantity of waste produced
SOCIAL	Demography, Education, Employment, Equipment, Health, Infrastructure, Safety	Migration, Resettlement, Schooling, Support, Skills, Parity, Employment, Communication, Provision, Sanitation, Health, Housing, Diseases, Working conditions	30	Number of inhabitants, Number of people attending a company's health centre, Number of working hours lost due to accidents per year, Budget allocated by a company for housing support
GOVERNANCE	Communication, Transparency, Development, Social stability	Environment, Trade Union, Local community, Supports, Security, Criminality, Representation	8	Number of meetings with local communities per year, Number of local firms created through company support, Type of on-site security force

development. The result is more satisfying for data from the social sphere whose outlines are still poorly defined in sustainability analyses and mining company reporting.

## 5. CONCLUSIONS

The availability of these variables is currently being assessed at the national scale of each involved country before defining a more limited final selection. The main difficulties encountered in this work are related to the choice of working scale (local, regional, national or company), data accessibility, and confidentiality (especially those from companies) which turns out to be a major obstacle given the lack of regulations, or lack of respect for the regulations, in terms of reporting.

The adopted desire for a participative approach in this project is considered by the participants as an element of satisfaction and a guarantee of its success. The creation of national inter-ministerial working groups is a

structural element to be supported. This initiative has already led to excellent working partnerships being established between the Mine and Environment departments in several countries (Madagascar, Guinea, Senegal, and others). The aim of the next and current stage is to build up the database whose dual function will be to receive the collected data and enable the drawing up of indicators that meet the observatory's analysis requirements...

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