DEFINING AND SHARING INDICATORS TO SUPPORT A SUSTAINABLE MANAGEMENT OF MINERAL RESOURCES IN AFRICA

Récoché, G.[1] & Chamaret, A.[1, 2]

in collaboration with Bah N. (DNG, Guinea), Coulibaly F. (BUMIGEB, Burkina Faso), Diakité S. (DNGM, Mali), Gebremichael M.W. (SEAMIC, Tanzania), Gonda O. (DRGM, Niger), Issufo Z.A. (Mozambique), Kimomo S. (MNER, Kenya), Koné A. (UEMOA, Burkina Faso), Lugaizi I. (GSMD, Uganda), Mathy J.T. (MMAI, Senegal), Malanga J. (SIGEMA, Angola), Minde A. (TGS, Tanzania), Rakotonomenjanahary V. (MEM, Madagascar), Shiferaw A.M. (GSE, Ethiopia), Taleb A.O. (SIGM, Mauritanie), Tibiri L. (BUMIGEB, Burkina Faso).

1 BRGM – Mineral Resources Division, 3, av. C. Guillemin – 45060 Orléans, France; g.recoche@brgm.fr

2 University of Versailles St Quentin – Centre of Economics and Ethics for Environment and Development, 47 bld Vauban – 78047 Guillancourt, France

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The development and use of sustainable development performance indicators measuring the economic, environmental and social impacts at the mine-site, State and mining-company levels, find their justification in Chapter 40 (“Information for Decision-making”) of Agenda 21 (Rio, 1992). Such indicators 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, taking advantage of BRGM's R&D work in the field of Sustainable Development Indicators applicable to the Mineral Industry, the SIGAfrique Network project1 proposed, in November 2004, that the participating partners (cf. countries of the co-authors) develop a joint decision-aid tool entitled the "Observatoire Minier Africain" (OMA: *African Mining Observatory*) and, to this end, develop a system of indicators to be integrated within the SIGAfrique database. Using reliable indicators and factual data to document and analyse the complex relationships that exist between the mineral development and the sustainable development of a country or region, the aim of the OMA is to contribute to the fight against poverty on the African continent through promoting a sustainable utilisation of its mineral resources.

The development both of the OMA and of the indicators is coordinated by BRGM with the support of CIFEG (International Center for Training and Exchanges in the Geosciences), SEAMIC

(Southern and Eastern African Mineral Centre) and WAEMU (West African Economic and Monetary Union). It is based on a participative method within the working groups, which comprise experts/participants2 from the 13 SIGAfrique partner and observer countries. The first week-long workshops took place in November 2004 at WAEMU (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-aid tool represented by OMA by pooling the different national back experiences;
- Work on drawing up sustainable-development indicators applicable to the mining industry in Africa based on establishing a common list of candidate data;
- Reflect on the means and scales of using the SIGAfrique information system to both collect and use the information required for OMA to operate**.**

Identifying the data and the variables to be measured is done according to a protocol by which one defines the domains to be studied, defines the fields to be measured in these domains**,** identifies the sought-after objectives, selects the scales of the measurements to be made in these fields, defines the variables to be monitored, identifies their accessibility, and evaluates the quality of the variable in terms of pertinence, accessibility and exploitability**.**

At the end of this first stage, 81 priority 1 variables and 28 priority 2 variables were selected within the Economy, Social, Environment and Governance domains. The availability of these variables is currently being assessed at the national scale of each involved country before defining a more limited final selection. 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 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.

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[1] See V. Bouchot *et al.*, Maputo 2006
[2] cf. list of the co-authors

The main difficulties concern the choice of working scale (local, regional, national or company), data accessibility, and confidentiality 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.

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

Distribution of the selected variables in terms of domain, fields and measures

REFERENCES

Chamaret A., Récoché G., and O'Connor M. (2005). Proposal for a top-down/bottom-up approach to buid up indicators of sustainable development for use in the mining industry in Africa in SDIMI 2005, Aachen, 381-395.