SMALL SCALE MINING

Small and mid-scale mining in South Africa: beyond the rhetoric

by M. H. Solomon

In this article it is argued that there is a great deal of scope for developing the small and mid-scale mining sectors in South Africa. Relative to other countries, these sectors are underdeveloped but, in any initiative to develop these sectors, caution, maturity and common sense is desirable. Small-scale mining can make a significant contribution to local economic development. At a national level its contribution is likely to be negligible. Mid-scale mining has considerably more potential for material economic impact. The article is a revised version of a paper presented at the Windhoek seminar.

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Small-scale mining first came to the fore as a major political agenda item with the release of the ANC's Reconstruction and Development Policy Document sometime before the 1994 election. Since then small-scale mining has achieved prominence in the minerals policy process currently underway. This is primarily because of the vocal and well-organised small-scale mining lobby. However the problem we face is that we have no data as to how many small-scale miners there are in the field, how many people they employ, what contribution they make to the local or regional economy, and whether or not the political attention being afforded to the small-scale miners is warranted or not.

Benefits in terms of employment contribution to the economy or upliftment and empowerment are limited primarily to a local level. Furthermore, small-scale mining competes for land-use relatively more than larger scale, formal mines, particularly in areas where there is agricultural and tourist potential. Informal mining activities more often than not create considerable, and in some instances, disastrous, environmental damage. Because of the nature of the industry, rehabilitation is seldom undertaken, and therefore the landscape is spoiled for tourism and sterilised for agriculture. Many small-scale miners are operating at a subsistence level, and do not have legal title to the minerals they are exploiting. Because of the lack of resources, training and knowledge of legal requirements with respect to environmental management, they seldom have either the knowledge to conceptualise or draft a rehabilitation plan, if indeed they even know that this is a legal requirement, or the resources to employ professionals to undertake these on their behalf.

This leads to the next problem encountered by small-scale mining: efficiency. Whatever the arguments and debates around the ownership of mineral rights, few will disagree that minerals, like water, are a national asset. Because of the lack of skills and rudimentary equipment used by artisanal miners, efficiencies of recovery are often very low. This means in effect that, when deposits are worked by small-scale miners, their full potential is seldom realised. At Fulubisi in Zimbabwe, an experimental organised small-scale mining operation is being undertaken by the University of Zimbabwe, whereby they are 'mining to rehabilitate'. What they are essentially doing is to mine ground that has already been mined by small-scale miners, and to progressively rehabilitate the re-mined ground. They are successfully recovering sufficient grades to cover both mining and rehabilitation costs. In other words the efficiencies of recovery of the original small-scale mining operations were so low that there are adequate grades to warrant re-mining and rehabilitation.

The problems that small-scale mining can create are well established. The environmental problems are legendary: Zimbabwe has an estimated 100 000 to 400 000 small-scale miners, who have effectively destroyed 4000 km of river course over the last decade. The *garompero* problems of Brazil are well known, and similar problems occur all over the world. We witness the same problems in South Africa. A trip to Barclay West and Sydney-on-Vaal in the Northern Province will convince any person with a grain of environmental feeling that small-scale mining needs to be controlled and managed. However, as the industry is primarily an informal one, regulation and control is not easy, and the alternative of institutional support is equally problematic.

In the enthusiastic rush to develop the small-scale mining sector, South African politicians have not stopped to ask some basic questions:

- Is small-scale mining desirable?
- Should it be encouraged or discouraged?

- Should it be supported by taxpayers' money in the light of other developmental priorities?
- Can it be regulated?
- If the government is to support small-scale mining, which department is to be the responsible department?
- If the government elects to support small-scale mining, what type of institutional support should be provided to the sector, and to what level?
- What can we learn from our neighbours and other developing countries? and
- What should the relationships be between small-scale mining and the larger mining companies?

Few of these questions have been adequately addressed, and we will face the very difficult task of extinguishing fires that may have been unwisely started and fuelled by politicians if we decide in the end that the initiatives taken to date have been ill-advised. Politicians will be extremely exposed if they do not rapidly develop an appreciation for the problems and come up with a national policy and strategy for the industry. There is little question that small-scale mining is an industry that exists, and does not have to be created and promoted. There is therefore a great deal of motivation for establishing a well-organised and properly supported industry. Experience in Zimbabwe, Ghana and Tanzania has shown that, once flourishing, small-scale mining is virtually impossible to either stamp out or regulate. Examples exist, however, of control being exercised through organisation, and self- and peer-regulation, and this is a possible approach.

Mineral rights have been popularly presented as the major problem facing small-scale mining to date. Without belittling the problem of ownership of mineral rights in South Africa, or the question of access thereto by small-scale miners, this perspective is too narrow. There are equal problems of bureaucracy, institutional support and skills. The over-riding question regarding these issues is one of responsibility – who is *ultimately* responsible for:

- the plight of the small-scale miner;
- health and safety;
- mineral rights management;
- institutional support;
- environmental rehabilitation; and
- regulation of the industry?

Before we can address all these issues we need to establish the extent of small-scale mining in our country. The establishment of a profile on the industry is therefore an urgent requirement.

Definition of small-scale mining – what is small?

There have been a number of attempts to classify small-scale mines by size but none has received universal recognition. This is primarily because:

- Terms such as artisanal and small-scale are loosely used in different contexts by different people;
- The relationship between production and value varies from sector to sector (e.g. high tonnage / low value for commodities such as sand, vs. low tonnage / high value for diamonds);
- The trade-off between capital employed and labour is generally not taken into account; and
- the most easily recognisable distinction, the degree of formality, is not necessarily related to size.

The quantifiable aspects of a mining operation are as follows:

- number of employees,
- capital employed or capital assets,
- output tonnage, and
- revenue.

There are degrees of size along a continuum for any one of these aspects, but the challenge is to categorise an operation or group of operations giving due regard to each of these quantifiable factors, which are not necessarily functionally linked, *and* to the degree of formality.

Classification of small-scale mines

The method adopted here measures each of the quantifiable aspects of an operation independently on a scale of 1-5. In addition the degree of formality is identified. By weighting the totals according to class an average class is arrived at. This serves to determine the relative size of an operation according to common criteria. Moreover loose terms such as "small" or "micro" are avoided.

The scale definitions for each category are scheduled in Table 1.

Table 1. Classification of small-scale mining operations

Category	1	2	3	4	5
No of emplyees	1–5	6–9	20–49	50–99	100–1 500
Capital employed/assets (kZAR)	<5	<5–99	100–999	1 000–4 999	5 000–50 000
Output (t/y)	1–1 999	2 000–9 999	10 000–59 999	60 000–149 000	150 000–1 000 000
Annual revenue (kZAR)	0–9.9	10–299	300–1 999	2 000–9 999	10 000–100 000
Formality	unknown/illegal	DME listed	private – tax registred	closed corporation	(Pty) Ltd./Ltd.

Table 2. Example of classification of a Class 2 mine

Category	1	2	3	4	5
No of emplyees	√				
Capital employed/Assets (kZAR)		√			
Output (t/y)		√			
Annual revenue (kZAR)			√		
Formality	√				
Total	2	2	1		
Total points	2x1=2	2x2=4	1x3=3		
Overal total	9				
Classification	1.8				

Examples of application of this method of classification follow in Tables 2 and 3.

Combining the totals weighted by class gives an overall total of nine points. The average classification is therefore 1.8, which is rounded off to Class 2.

Scores for individual mines can be aggregated to provide a profile for an area under consideration such as a district or province. Profiles on a sectoral basis (e.g. coal, gold etc.) can also be derived for any given geographical area.

Mid-scale mining – junior resource operations

"Mid-scale" mining is one step up from "small-scale mining". Mid-scale mining is what in the rest of the world would be referred to as junior resource operations: the junior mining sector, or Class 5 in the classification system outlined above. This level of operation has become increasingly to be reckoned with in Canada, Australia and the developing arenas in Africa, South America and Indonesia.

This level of mining is not entirely new in South Africa, but has recently gained prominence as the large mining operations that have come into being over the last century start to restructure, and the potential for new discoveries of major ore bodies declines. Mid-scale mining has also been catalysed by new technologies, particularly in respect of mineral beneficiation, which has made it possible to treat ores of very low grade economically, at scales of economy not previously possible.

The latest generation is new to South African mining for two reasons. Smaller gold mining companies blossomed in the mid- to late eighties, resulting in a spate of listings. Most of these listings made money only for the promoters and the stockbrokers, and collapsed with the 1987 gold crisis. This destroyed South African private investor confidence in the juniors, and South African institutional investors on the whole are simply not willing to take risks on juniors. Consequently, South African juniors have little support from local investors, either private or institutional, and are forced to look elsewhere for investment. Meanwhile the profile of the Canadian investor is very different, and punters on stock exchanges such as Toronto and Nasdeq look for 'blue sky' and are prepared to take risks. Since the change in government there has been a major influx of Canadian and Australian investors into the South African industry.

Apart from reticence on the part of the South African investor, other reasons put forward for the uncertain status of mid-scale mining range from an apparent lack of suitable geological potential to a dearth of easily accessible mineral rights. However, mid-scale mining has a key role to play in the resurgence of SA's mining competitiveness and warrants efforts on the part of the government to encourage those with the experience in this level of operation to invest in, and assist in developing, a formal mid-scale mining sector in this country. While the boundaries between small-scale mining and mid-scale mining might be blurred, mid-scale mining could have an important role in a new phase of mineral development in South Africa.

Black empowerment through small and mid-scale mining

Can black empowerment be fostered by small and mid-scale mining? There are a number of aspects to this. Black involve-

Table 3. Example of classification of a Class 3 mine

Category	1	2	3	4	5
No of emplyees		√			
Capital employed/Assets (kZAR)				√	
Output (t/y)			√		
Annual revenue (kZAR)			√		
Formality					√
Total		1	2	1	1
Total points		1x2=2	2x3=6	1x4=4	1x5=5
Overal total	17				
Classification	3.4				

ment in mining at any level above general labourer and first line supervision is extremely limited as a result of apartheid restrictions to black qualification and advancement in the industry. Because blacks were prohibited from holding certificates of competency or positions of authority in the mining industry, affirmative action is more complex in this industry than many others. There are simply very few black people within the industry equipped to take on senior positions in mining houses. This has a number of implications for small and mid-scale mining. It means in essence that, for those blacks who have appropriate mining qualifications, the future is so bright in the established mining houses that there is little motivation to enter the high-risk world of small and mid-scale mining. In the short term, we are unlikely to see a significant black management and entrepreneurial skills base developing in these areas.

On the other hand there has apparently been a huge response from the black business sector to offerings made by the mining companies of mineral rights in their portfolios. These exercises, undertaken primarily by JCI and De Beers, and emulated to a lesser extent by Anglovaal, Ingwe Coal and others, are a somewhat unsubtle attempt to persuade the policy makers that it is not necessary to revise the current mineral rights regime. The question is, to what extent is this process empowering the black sector?

It is difficult to assess the calibre of the black applicants for these mineral rights without analysing their submissions and applications. It would not be unreasonable, however, to suspect that a proportion of the applications might be from opportunists with no mining skills who see this as an opportunity to make a quick profit by selling on the mineral rights, if acquired, to established mining interests. A good proportion are also likely to be 'fronts' for white interests wishing to access mineral rights intended for black ownership. No doubt, however, many of the applications are genuine and credible, even if there is a black—white partnership involved. Provided that there is sufficient and genuine black equity in such partnerships there is nothing wrong with these initiatives, considering the lack of technical and financial skills in the black mining base in this country. As an entry point into economically successful mining, these arrangements will almost certainly be empowering to the black partners, and ensure a greater degree of success in new black mining initiatives.

However, the acquisition of mineral rights purely with a view to selling these on to white South African or foreign investors is not empowering in any way other than making money for the entrepreneurs involved. This does not assist in creating a black presence in South African mining, and therefore empowering blacks with regard to the mining industry. This syndrome is greatly in evidence in Namaqualand where despite the fact that mineral rights have been available to the local people for 15 years, there are no local miners of any substance.

At the micro- and artisanal mining level, there is always the possibility that the black miner who obtains rights may be able to move on to greater endeavours, but as the nature of this end of the scale is primarily subsistence, this is unlikely. Subsistence implies survival, and without institutional support, the possibility that these miners will be able to earn sufficient money to both live and re-invest in expanding and building their mining business is remote.

Artisanal or micro-mining cannot therefore be seen as empowering to the same degree as small businesses being set up in other sectors, unless the institutional support is provided whereby these miners can progressively develop their skills levels, mine efficiently and have access to funds to equip and expend their operations. Only then can this type of mining lead to empowerment.

Thus, to recap, mid-scale mining is likely to lead to black empowerment provided that the players are integrally involved in establishing a credible junior sector in South Africa and are not merely token fronts for white interests. Small-scale and artisanal mining on the other hand can only be empowering if it can extend beyond the subsistence level. This will only happen with the establishment of a well organised, semi-formal or formal industry with strong institutional support to assist in developing this sector of the industry, and moving it beyond its current status of questionable merit.

Diversion of economic power

There is also an argument that financial black empowerment can come about through involvement in the first instance in small and mid-scale mining, and that such involvement may well be the first step towards diversion of economic power, but this is questionable at this level of the industry. The modern South African economy is built on mining. The first white commercial mining of any significance was the development of the copper deposits in Springbok in 1851. That created infrastructure in a very remote part of the world, but the copper was all exported immediately by colonial interests, and the mining did not contribute substantially to the development of the country's economy. However, the discovery of diamonds did. The Kimberley diamond diggings started off as a concentration of small-scale mining operations that led to the development of both the modern mining and manufacturing industries in South Africa. The small-scale miners in Kimberley developed into mid-scale and ultimately large-scale miners, and in doing so, provided the capital base to develop both the gold mining sector and the heavy industrial sector to support the mines. To a great extent money from Kimberley funded the development of the then Eastern Transvaal (Mpumalanga) and Witwatersrand goldfields. Almost without exception, the major players in the development of the Witwatersrand gold mines came from, and had cut their teeth in, Kimberley. To this day, a great deal of the country's economic power lies with the mining companies established before the turn of the century to exploit the gold deposits.

This history seems to show that small-scale mining can lead to economic empowerment and development, and that mining can form the basis of a diversified economy. Unfortunately, the spectacular potential of those early days no longer exists, and therefore one has to modify ones thinking as to the extent that small and mid-scale mining can really lead to the diversion of economic power. Again we need only to refer to our own history to answer that question.

The major South African mining houses were developed primarily by British nationals, and ownership of the mines and the supporting and downstream industries was concentrated in the white, English-speaking community. With the change in government in 1948, political power was transferred to the Afrikaans-speaking sector of the white community, but the economic power remained vested in the English-speaking community. There was little Afrikaans capital to speak of, and minimal Afrikaans ownership of any means of production. Furthermore there was little Afrikaans presence in senior management in industry, particularly the mining industry. Until the 1960s, mine management was predominantly English, and the white working class (miners and artisans) were predominantly Afrikaans. It took an aggressive programme of affirmative action, including the establishment of an Afrikaans mining department at Pretoria University, to change the profile of management in mining. More significantly, to remedy the problem of ownership necessitated a planned entry of Afrikaans interests into the mining sector. This was achieved by Anglo American facilitating the acquisition of General Mining, in which it had a major stake, by Afrikaans business interests. The vehicle used was a junior Afrikaans mining company, Federale Mynbou, which at that stage had a mid-scale coal mining operation. The money used came from the only significant Afrikaans capital base, Sanlam, money which had been accumulated from white working class savings and provident funding.[1] Sankorp is today second only to Anglo American as an industrial giant, and this bears testimony, as does the great presence of Afrikaans-speaking people in mine management, to the success of the affirmative action programme for the Afrikaners in the 1960s.

We are witnessing a similar process, not surprisingly also facilitated by Anglo American, with the recent acquisition of Johnnic by the National Empowerment Consortium[2]. The similarities to the General Mining / Federale Mynbou exercise are remarkable. Here we see the acquisition of mining and industrial interests from white capital interests funded by black insurance and provident funds.[3] JCI's mining interests are set to follow Johnnic in a black take-over, and this will set the course for major black empowerment and diversion of economic power.

In other words the diversion of economic power from white to black is taking place through the transfer of major mining and mining-related industrial interests, not through small or mid-scale mining. While these levels of operation theoretically have merit as vehicles for empowerment, it is difficult to imagine that they could catalyse the diversion of economic power. Kimberley is unlikely to recur in South Africa.

Extent of responsibility of mining companies

There is unquestionably a clash of interests between formal sector mining and informal sector mining. The small-scale mining fraternity accuses the mining majors of sitting on mineral rights and depriving them of access to the industry. It is difficult to gauge the extent to which this is in fact true, although there is undoubtedly an element of truth in it. But these accusations, as well as the political pressure resulting from intensive lobbying on the part of small-scale miners, have prompted the mining companies to dispose of their lesser properties in a very public way.

In as much as this shedding of mineral rights by the major South African mining houses is willing and not just expedient, these companies have recognised that they do have a role to play in assisting the small mining sector. However, how much further does the responsibility of mining companies go with respect to small and mid-scale mining? Releasing mineral rights is one thing. Providing material support and assuming responsibility is entirely another.

Permitting clean-up operations by small-scale miners on operating mines

Small-scale miners are making other demands on mining companies that are proving difficult to respond to. For example, in Kimberley, they are demanding that De Beers make dumps available to them to mine. In many instances, old dumps are the result of mining in the times when technology was primitive and recoveries low. Such dumps form an important component of a mining company's strategic reserves, particularly where companies have been operating for many years and are reaching the end of their lives. Mine clean-up, which includes the treatment of dumps and the processing of ground upon which recovery plants have been situated, and the scavenging of precious metals from old equipment, mine timber and piping, is very lucrative and is an integral phase of a mining company's life.

Demands for mining companies to surrender these valuable assets to small-scale miners may have political and emotive appeal, but do not have the grounds for the entitlement claimed by those making them. It may well be expedient for mining companies to release these some of these assets to small-scale miners as a goodwill gesture, but such gestures can backfire. In the De Beers case, where the company has made dumps available to small-scale miners, there have already been accusations it has only 'given the rubbish', and held on to the dumps with higher values. In so doing, they have 'deprived' the small-scale miners of good opportunities to which they feel entitled.

There is a further problem with this type of grant. Particularly where precious stones and precious metals are involved, mining companies granting rights of clean-up to small-scale miners on their properties stand the risk of legitimising conduits for product stolen from their mainstream operations. It is common knowledge that illicit diamond buying is rife in South Africa, and the size of the industry is estimated to be between US$40 and $70 million per year. Some estimates make it as high as US$200 million. As far as the gold mining industry is concerned, recent press articles have reported the cracking of a R2 billion gold theft syndicate,[4] indicating that the scale of theft in the gold mining industry is also extremely serious.

Creating a situation where small-scale miners can legitimately recover precious stones and precious metals within the boundaries of a mine could create a risk situation for a mining company. This risk is appreciated by mining companies, and is a disincentive to co-operate in this type of activity.

Responsibility for health and safety

Another conundrum facing mining companies who permit small-scale miners to mine for their own account on operating mines is the responsibility for health and safety. In terms of the Health and Safety on Mines Act, the mine management is legally responsible for the health and safety of all persons working on the mine property. This would include small-scale miners scavenging dumps or worked-out areas, as well as members of another mining company contracted to produce ore on the basis of payment for product produced. Unless systems for the proper working discipline of the small-scale miners can be established whereby there is adequate supervision and formal lines of accountability and statutory responsibility for health, safety and environmental management, the accommodation of small-scale miners on mine property is untenable to the mine owners and managers.

There is however, a lot of scope for scavenging once a mine has closed down and the operators have abandoned the property. A good example of this is to be seen at the Uis Tin Mine in Namibia. The mine was operated by Iscor, a South African company, and ceased operations some years ago. Small-scale miners have moved on to the property, and, with technical and financial assistance from the Namibian Department of Mines and Energy in conjunction with Swedish development aid, are successfully scavenging the worked-out areas. But this activity does not involve the major mining company at all.

Illegal mining

In many peoples' minds, artisanal mining is synonymous with illegal mining. While this is sometimes the case, the assumption is unfortunate in the sense that the immediate reaction to small-scale mining is generally negative. In South Africa, it would appear that the majority of small-scale mining activity is legal. Most of the diamond workings around Mafikeng, Schweizer Reineke, Leeuwdoringstad and Christiana in the North-West Province, and Warrenton and Barclay West in the Northern Cape would be classified as small-scale mines. On the whole these operations are perfectly legal.

There are also known instances of illegal small-scale mining such as at Lilydale and Louisville in Mpumalanga, the mining of semi-precious stones in Namaqualand, and the mining of coal in Witbank and KwaZulu-Natal. It is clear that in most instances illegal mining is subsistence mining necessitated by unemployment and poverty, and undertaken by people who have little or no knowledge of legal requirements, or are unable to legitimise their activities for logistical reasons or lack of resources. Illegal mining is however far more widespread in many other African countries. In Zimbabwe, the extent of illegal mining in rivers passing over established legal mineral rights grew to such an extent that the government chose to legalise river workings and separate the alluvial minerals from the traditionally zoned mineral rights. In Ghana there have been reports of small-scale miners raiding prospecting trenches overnight, effectively destroying the prospects. Illegal mining is rife in Tanzania, Angola and Zaire to the extent that the small-scale miners have been known to threaten the legitimate owners of the mineral rights who have attempted to prospect or mine.

It is for these sorts of reasons that established mining companies fear the activities of small-scale miners. However the small-scale mining lobby holds the moral high ground. We now turn therefore to a discussion of the possible approaches that can be adopted towards small-scale miners.

Regulation

Clearly, one of the great difficulties in the control of small-scale mining is regulation. It is possible to regulate formal sector mines of whatever size, as the owners are identifiable, and the operations are subject to statutory permissions that can be withdrawn if the health, safety, environmental or any other conditions are not adhered to. Illegal small-scale miners are to all intents and purposes not identifiable and as such, it is difficult to enforce accountability for damage. Attempts, for example, to contact the miners at Lilydale were hampered by the disappearance into the surrounding bush of a suspected 50 small-scale miners at the approach of authorities in vehicles or helicopters. Only approaches though tribal and political channels eventually drew them out for discussions. But in instances like this where the artisanal miners are mining on mineral rights legally held by a mining company, little can be done on the one hand to legitimise or regulate them, and on the other hand it is virtually impossible to prevent them from mining, as experience has shown. Regulation of illegal small-scale miners operating on other parties mineral rights would take little less than an ongoing full-scale military or police assault, and the effectiveness of extreme measures such as this would still be questionable.

Another question that needs addressing here is whether, because of the political sensitivity associated with small-scale mining, differential regulation for the industry is appropriate, desirable or indeed possible. If one recognises that small-scale miners lack the resources of formal sector mining companies, should they be exempted from health and safety or environmental regulations applying to the larger mining companies? Should the State take responsibility for these aspects if statutory responsibility at the level at which the artisanal miners operate is not possible in terms of current legislation or statutory requirements?

Institutional support

The alternative to regulatory control of small-scale mining is institutional support. This has been covered in many other papers on this subject, and it would be repetitive to deal with the details of these initiatives here. The basic premise behind the provision of institutional support to small-scale miners is that if it is impossible to regulate the smaller and illegal operators, one can only hope to mitigate the negative impacts of their activities by education and training and by assisting them to formalise and legalise their activities. This would entail an active programme to:

- legitimise their activities by providing mineral rights that are viable at their level of operation;
- instil in the artisanal miners a sense of responsibility for the environment;
- train artisanal miners to enable and equip them to work more efficiently and safely; and
- provide access to funding for the purchase of appropriate equipment.

Few will agree with the concept of institutional support to small-scale miners. Who will take responsibility for this programme is yet another issue. The Department of Minerals and Energy has to date paid lip-service to small-scale mining, and made an unconvincing attempt in its 1995/96 budget presentation to demonstrate that it was addressing the problem. With the restructuring of the department and the recent appointment of a Chief Director for Development, the department has demonstrated some material commitment to addressing these issues. This appointment is significant in that it addresses the quandary faced by the department in accepting responsibility for the support of small-scale mining on the one hand, and the need for aggressive regulation of the industry on the other. The separation of the two functions, which are diametrically opposed to one another, into the sphere of responsibility of two different Deputy Directors-General should make it possible for the department to take a more active role in the provision of institutional support to the sector.

Even with the developments within the department, the extent to which they are able to respond constructively and take real responsibility remains to be seen. The Department has at its disposal the services of the State-funded science councils such as the CSIR, Mintek and the Geosciences Council to provide additional strength to the State's delivery mechanism. There is little or no excuse for the department not to tackle the industry in the short to medium term, before it gets unmanageable.

However, it is questionable whether the State alone can take full responsibility. It will most certainly need the assistance of the industry for technical, logistic and financial support apart from an ongoing willingness to make mineral rights available to small and mid-scale miners. This support will have to be voluntary, and is advisable even if mining companies co-operate purely to avoid criticism and harassment from the lobbies and their supporters.

Assessing the extent of small-scale mining in South Africa

Decisions around these issues depend to a great extent on establishing the current extent and nature of the small- and mid-scale mining industry in South Africa. A baseline study of these operations is about to commence in order to achieve this. The exercise will seek to establish the number of registered and illegal operations, and categorise them according to the following variables:

- *Status*
  - mineral commodity
  - size category (number of employees, asset base, turnover)
  - region/province
  - ownership (individuals, breakdown by race)
- *Group Categorisation*
  - type of deposit
  - nature of excavation
  - capital cost of set up

- ease of processing
- barriers to entry
- conditions for viability
- degree of beneficiation
- marketability of minerals

• *Economic Contribution*
- numbers of people employed
- wages paid
- taxes paid
- revenues achieved.

The baseline study will cover the provinces in which there is a significant concentration of small and medium-scale mining. These are: Mpumalanga, Northern Province, North West, Northern Cape and Free State.

Very little, if any, of this information is available from any source. This means that the information will have to be gathered by means of a primary research exercise. A start has been made in a joint venture between the Minerals and Energy Policy Centre, and BMI, an industrial research organisation. The study is being funded by the Department of Minerals and Energy, the affected provincial governments, and some other interested organisations. It is notable that this study has been opposed by the Chamber of Mines.

Conclusion

There is sufficient motivation and a great deal of scope for developing the small and mid-scale mining sectors in South Africa. Relative to other countries, these sectors are for historical reasons underdeveloped. However, in any initiative to develop these sectors, caution, maturity and common sense is desirable. While small-scale mining can make a significant contribution to local economic development, at a national level its contribution is likely to be negligible.

Mid-scale mining on the other hand has considerably more potential for material economic impact. Administrators, legislators and bureaucrats need to exercise extreme caution when providing unqualified and enthusiastic support to the small-scale mining cause or its lobbyists. It would appear that, in the absence of an adequate understanding of the extent of the industry, its merits and its pitfalls, small-scale mining is being enthusiastically and perhaps unwisely supported and promoted by politicians. We are aware of the great problems that have been caused by small-scale miners in the rest of the world, and it is premature to promote and promise support to the industry until such time as we do understand it.

It would be inappropriate for scarce development resources to be allocated to an industry that may well not provide the return that could be derived from other sectors. In addition, it would be equally inappropriate for the government to encourage, aid or abet the development and promotion of an industry that has the potential to become unmanageable, and to cause massive environmental damage. Ultimately the taxpayer will be responsible for paying for the damage, either through the appointment of inspectors and regulators, or for environmental rehabilitation of damage created by the miners. The cost of these measures has to be weighed up against a qualified assessment of the economic advantages of promoting small-scale mining. It would be an ultimate irony to use development aid or taxpayers' money to create a net drain on state resources. A measured, qualified and systematic strategy for the industry is therefore necessary before any political support should be forthcoming.

The basis for such a strategy is to develop an understanding of the industry and an appreciation of its merits and pitfalls. This, not the unqualified provision of mineral rights and institutional support to small and mid-scale miners, should thus be the priority.

Notes

1. Sanlam grew out of the Spoorbond - a saving scheme for Afrikaans railway workers.
2. This consists primarily of New Africa Investments Limited (NAIL) and the Mineworkers Investment Corporation (MIC).
3. NAIL is backed by Momentum Life, the major black insurance company, and MIC is the investment vehicle for the National Union of Mineworkers' provident fund.
4. Sunday Times, 22 August, 1996. ■