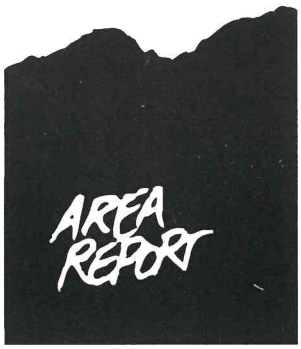


Lessons from Botswana mining experience

By B Gaolathe

This article discusses aspects of Botswana's experience in promoting mineral development since independence over a quarter of a century ago. It was originally presented to the Conference on mining investment in Namibia, held in March 1993. The author expresses the hope that Namibia, a late comer to the community of independent countries, may find lessons to learn from Botswana.

B Gaolathe is Managing Director of Debswana Diamond Company (Pty) Limited, P O Box 329, Gaborone, Botswana.

There are a number of similarities and dissimilarities of interest between Botswana and Namibia. Both are relatively large in terms of population with average densities of less than 2.5 persons per square kilometre. They are both semi-arid with substantial areas covered by sand, and therefore with limited exposed geology. They share a very long border. Consequently developments in Botswana are of interest to Namibia and vice versa. Botswana is landlocked while Namibia has a long coast line and therefore nearer to international water ways. Botswana obtained independence being a very poor country with largely undeveloped physical and social infrastructure. At independence Namibia inherited an economy with relatively high but unevenly distributed GDP, and a more developed physical and social infrastructure. The contribution of mining to Botswana's economy was marginal while in Namibia it was already substantial. Botswana has had to promote mineral development under relatively unsettled geopolitical situation in Southern Africa while Namibia is embarking on promotion of mineral investment under relatively improved political environment in our region. If Botswana has succeeded to promote a viable mineral industry there is no reason, given time, why Namibia with relatively favourable starting conditions should not succeed. In the section below we summarise the role mining has played in the development of Botswana economy. This is followed by an explanation of Botswana's mineral development policy objectives which guided promotion of the mining industry. The subsequent sections summarise how Botswana has gone about promoting mineral development, creating a conducive environment for investment by the international private sector and how it has gone about endeavouring to maximise benefits from mining.

Role of mining in Botswana's development

When Botswana attained independence some twenty seven years ago the small mineral activity involving exploitation of iron , gold and asbestos that had taken place before had virtually ceased. Quarrying on a small scale and limited extraction of manganese as well as some prospecting were all that was happening in the mineral sector. Since then a copper/nickel mine has been opened at Selebi Phikwe, diamond mines have come into production at Orapa, Letlhakane and Jwaneng, a coal mine has been developed at Morupule, and more recently a major soda ash/sodium chloride project has been commissioned at Sua Pan.

Several mining leases for small mining of various minerals and industrial minerals are also in force. The promotion of mineral development has made a major contribution to the growth of Botswana's economy, indeed to the country's graduation from the group of the world poorest and lately from the least developed countries. At independence the Botswana mineral sector contributed about 1 per cent of the nation's 32 million pola (Botswana's currency, MBWP) Gross Domestic Product (GDP), less than 1 per cent of exports and about 3 per cent of formal employment. By 1971 diamond production at Orapa had started and the sector's contribution to GDP, exports, employment and Government revenues had increased to 11 per cent, 39 per cent, 9 per cent and 5 per cent respectively. By that time the total GDP had grown to 103.6 MBWP. Ten years after independence with the copper/nickel project on stream the sector's share of GDP, exports, employment and Government revenues had increased to 14 per cent, 58 per cent, 9 per cent and 20 per cent respectively. By twenty years after independence the sector's contribution to GDP of 2 810 MBWP, exports and Government revenues had increased to 44 per cent, 82 per cent and 55 per cent respectively. The share of employment had decreased in percentage terms to 6 per cent but the number employed in the sector had increased to 9 450 persons.

As Botswana crossed a quarter of century after independence the mineral sector contribution to the country's economy was

still great despite efforts at diversification to other sectors. The sector had reached a peak share in 1988/89 when it contributed 53 per cent of total GDP of 5 472 MBWP. In 1991 mineral exports represented 89 per cent of total exports, mineral revenues constituted 46 per cent of total Government revenues while the sectors employment reached 13 200 or 6 per cent of the total national formal sector employment of 228 900. Overall the economy had grown by an average of 13 per cent in real terms and total GDP was 7 854 MBWP. The evolution of Botswana's economy in terms of GDP, exports, government revenues and formal sector employment showing contribution by the mineral sector is illustrated by table 1. The table also shows the relative contribution of diamonds and copper/nickel.

Although a lot has been done to collate data on the geology of Botswana and to promote development of Botswana's mineral sector, its full potential has not yet been realised. The industry is not sufficiently diversified. It is dominated by diamond mining. Extensive and intensive exploration efforts are underway. There were 305 prospecting licences in force by January 1993. The maps on pp 5 and 9 show the geological framework and principal minerals of Botswana.

The foregoing summary has shown that mineral exploitation has been a major engine in the development of Botswana's economy. As already intimated in the introduction, Namibia will be promoting investment in mining from a slightly more developed foundation compared with Botswana. Consequently it stands a good if not better chance of moving forward quickly. Namibia had more than 40 active mines of

Table 1
Mineral sector contribution to Botswana economic growth in terms of gross domestic product (GDP), exports, government revenues and employment

Year	1965	1966	1967/68	1971/72	1976	1981	1986	1991
Indicator								
Gross domestic product (MBWP)								
Mining GDP	0.2	–	0.7	11.2	42.0	201.6	1 229.8	2 657
Gross domestic product	32.2	–	43.8	103.6	300.4	875.5	2 809.8	7 854
Mineral GDP, per cent of total GDP	1	–	2	11	14	.23	44	34
Exports (MBWP)								
Mineral export	–	0.025	–	11.7	89.30	224.50	1 323.5	3 251.8
Of which diamonds	–	–	–	–	37.5	141.1	1 202.4	2 941.6
Of which copper–nickel	–	–	–	–	51.8	83.4	121.1	296.4
Total exports	10.2	10.8	9.2	30.3	153.2	347.8	1 619.3	3 673.0
Minerals, per cent of total exports	–	–	–	39	–	58	82	89
Diamonds, per cent of mineral exports	–	–	–	–	42	91	90	–
Diamonds, per cent of total exports	–	–	–	–	24	74	80	–
Government revenues (MBWP)								
Government mineral revenues	–	–	–	1.0	17.2	77.1	844.9	1 888.0
Total government revenues	–	–	–	19.3	87.4	322.6	1 547.5	4 069.4
Minerals, per cent of total revenues	–	–	–	5	20	24	55	46
Employment (persons)								
Mineral sector employment	–	–	814	3 468	5 450	8 100	9 450	13 232
Total formal employment	–	–	28 148	37 520	59 575	97 400	130 100	228 900
Mineral sector employment, per cent of total	–	–	3	9	9	8	7	–

Source: Ministry of Finance & Development Planning, Central Statistics Office

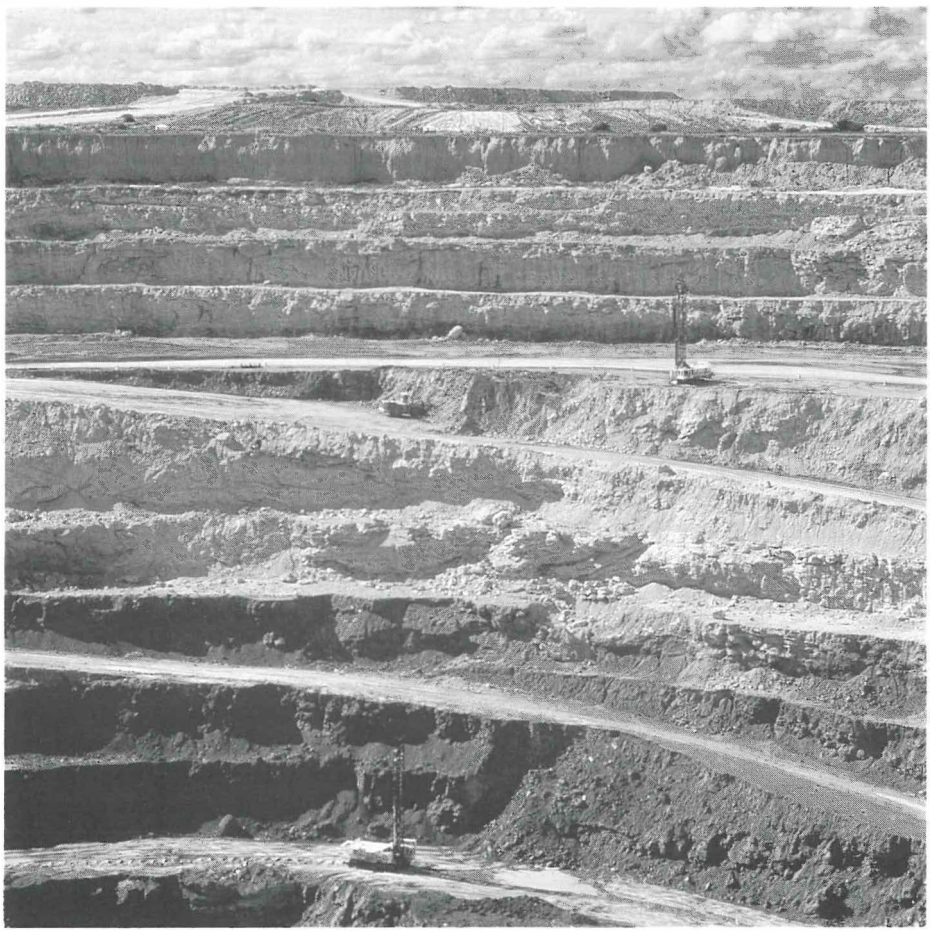
various sizes at independence. In 1991 mining contributed over 20 per cent GDP, and mineral exports accounted for over 60 per cent of Namibian foreign exchange earnings. However, starting from scratch has afforded Botswana opportunity to influence orderly development of the industry whereas options for Namibia in some cases may have been preempted before independence.

Mineral development policy

Botswana's mineral development policy objectives are intended to achieve the general goal of maximising the mineral sector's benefits to the country. These objectives encompass the following:

1. Promotion or acceleration of mineral prospecting and new mine development.
2. Maximisation of economic and financial benefits resulting from mining operations.
3. Encouragement of activities that generate real value added and linkages with the rest of the economy.
4. Creation of employment and training opportunities for citizens.
5. Minimisation of environmental damage from mining operations.

The Botswana Government realised at the outset that it had neither the financial resources nor the expertise to embark on a successful programme of mineral development on its own. Decision was taken to attract companies with the financial and technical knowhow from the international private sector to take the lead in the exploration, development and operation of mines. Botswana authorities generally approached mining from a developmental and commercial perspective rather than from a dogmatic nationalist viewpoint.



Diamond mining in Botswana. The open pit, Jwaneng.

A conducive environment for private sector investment was offered consisting inter alia of the following elements. At independence mineral rights were held by various entities including the state, tribal territories and private farmers. Immediately thereafter negotiations ensured with tribal authorities and others ending in vesting of all the mineral rights in the state. Private mineral rights owners could stick to their rights provided they carried out acceptable exploration programmes or paid mineral rights tax. Over time they opted to surrender the rights to the state.

The vesting of mineral rights in one entity, the state, considerably simplified procedures for obtaining prospecting licences and mining leases. Mining companies were saved from frustrations which often arise from negotiating with several authorities in the same country.

Efforts were made to build efficient institutional arrangements for the administration of mineral exploration and development. These institutions consist of the Department of Geological Survey which services the mining industry at exploration or prospecting stage, the Department of Mines which provide services at the exploitation or mining stage and the Ministry of Mineral Resources and Water Affairs Headquarters assisted by the interministerial Mineral Policy Committee which provide the necessary policy guidance and take the lead in negotiations. The respective roles of these institution will be revisited in greater detail in later sections.

Botswana has spared no effort in creating a general acceptable environment for private sector investment in the mineral and other sectors. The Government has allowed a mixed economy to flourish and has been pragmatic on the question of state versus private ownship of assets of businesses. Botswana has maintained a very liberal foreign exchange control regime which permit relatively free repatriation of dividends and profits and virtually unrestricted free-

Location of mines in Botswana. All small mines, numbered on the map, are for gold/silver except Tati Nickel Mining which mines copper/nickel.

dom to import goods and services. This policy has been aided by maintenance of exchange reserves at high levels. On the political front the country has enjoyed internal peace, rule of law and a successful multiparty democracy all of which have contributed to internal stability, which is one of the major prerequisites for significant investments by multinational mining corporations.

Furthermore during these several years the legislation governing mineral development in Botswana has been considerably improved and streamlined to provide a framework that strikes a balance between providing incentives to mining companies and achieving the national development objectives stated above.

Mining companies take the risk of investing their money in mineral exploration and exploitation with the ultimate goal of realising a satisfactory return on their investment. Therefore the nature of government policy on equity participation and taxation is a major element in the promotion of mining investment. We turn to this subject in the next section.

Equity participation and taxation

The Botswana Government has long adopted and maintained a fiscal policy towards mineral development consisting of three major elements: Equity, Taxation and Royalties. Equity participation is not seen just as an instrument for obtaining additional share of profits through dividends but also as a mechanism that affords government direct representation on the boards of mining companies to provide a means for government to have first hand information and direct say in the management of the nation's mineral resources. The arrangement ensures that Government policies and aspirations are understood by the private sector while on the other hand authorities obtain a greater appreciation of the problems faced by the private sector mining agement. The first hand information obtained by Government representatives enables the Government to provide timely support services where required. Generally

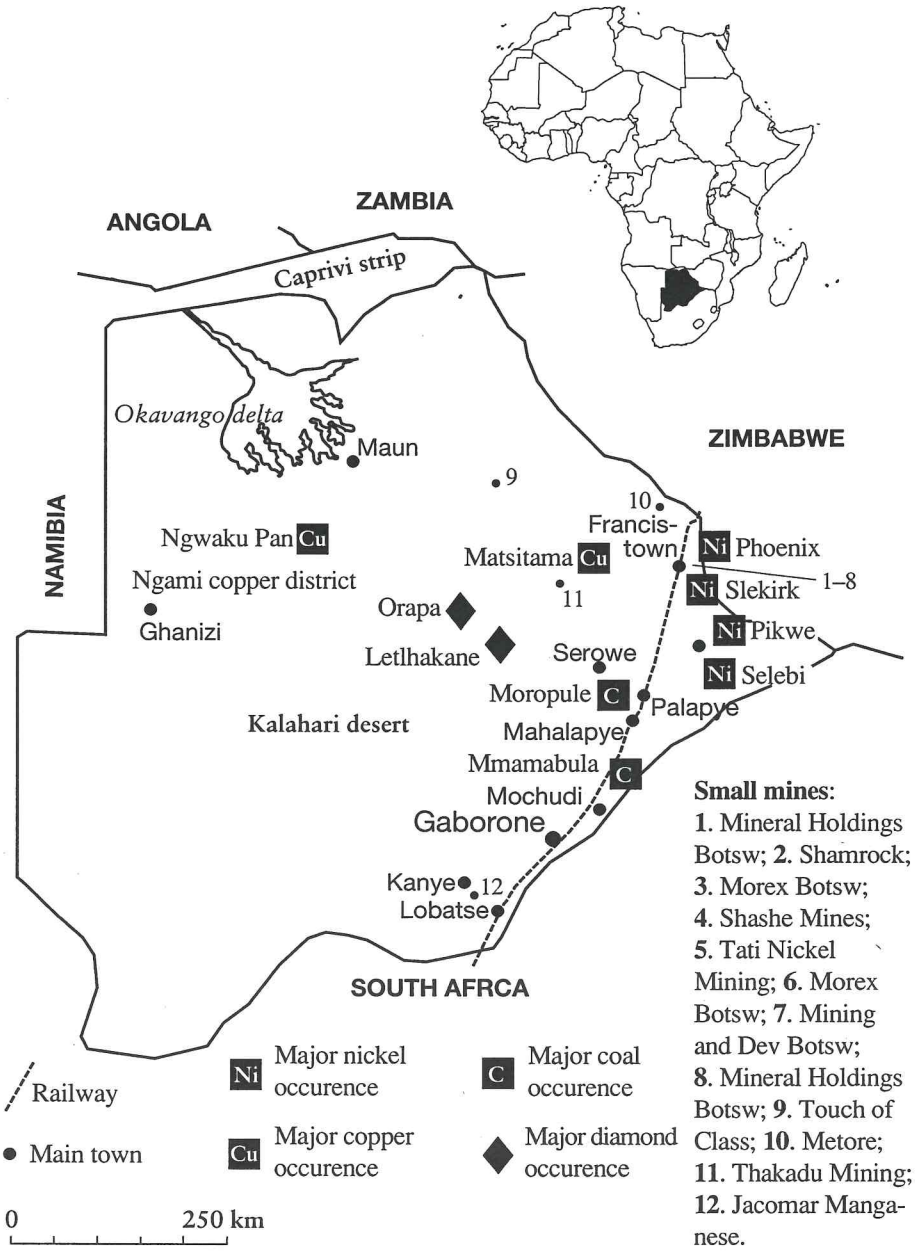
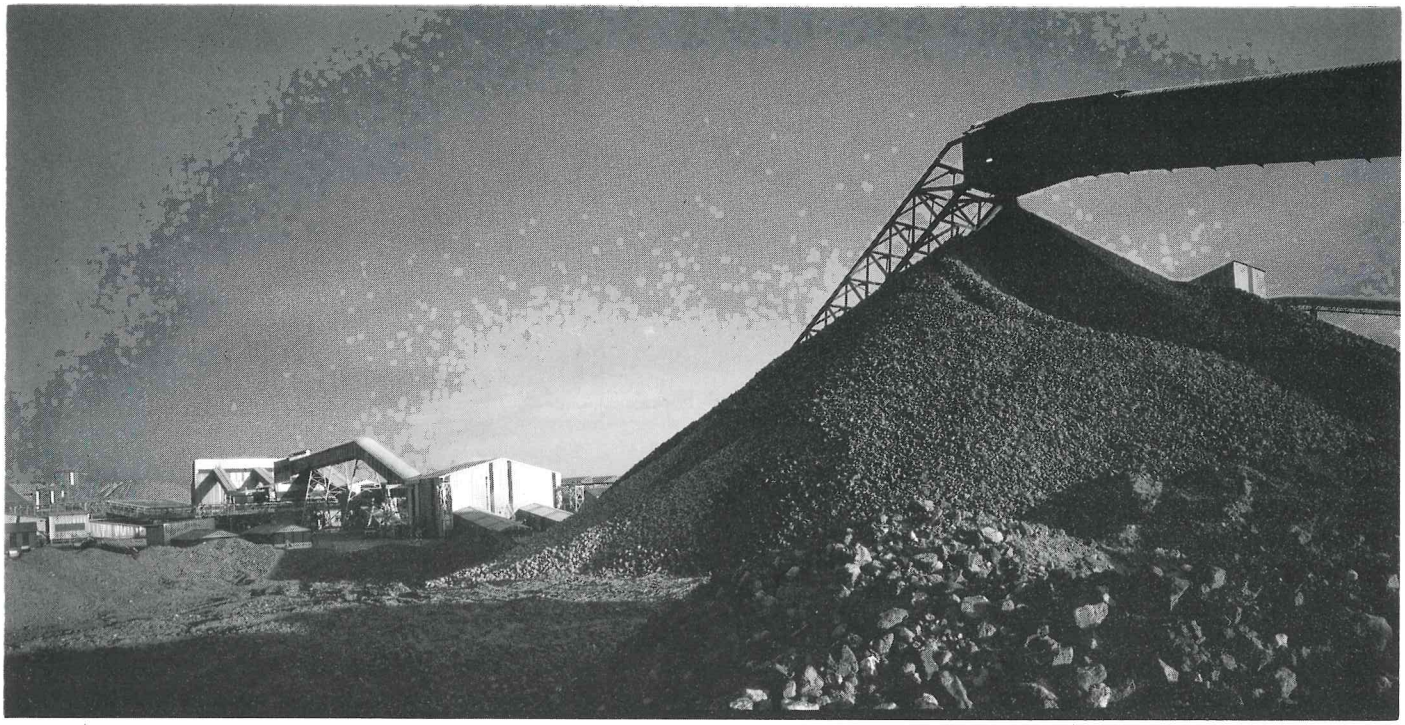


Table 2
Curent mineral royalty rates for Botswana

Mineral or mineral product	Royalty (per cent)
Building and Industrial Minerals	3
Coal	5
Oil Shale	3
Petroleum and Natural Gas	10
Radio-Active minerals	5
Precious stones	10
Semi-Precious stones	5
Precious metals	5
Other Minerals or Mineral products	3

A stockpile of diamond-bearing ore at the Orapa mine, Botswana, on its way to the main treating plant.



the role of the Government has been to ensure that mineral development was in line with the national objectives, influence being exercised through administration of exploration and mining licences as well as equity participation and control of infrastructure.

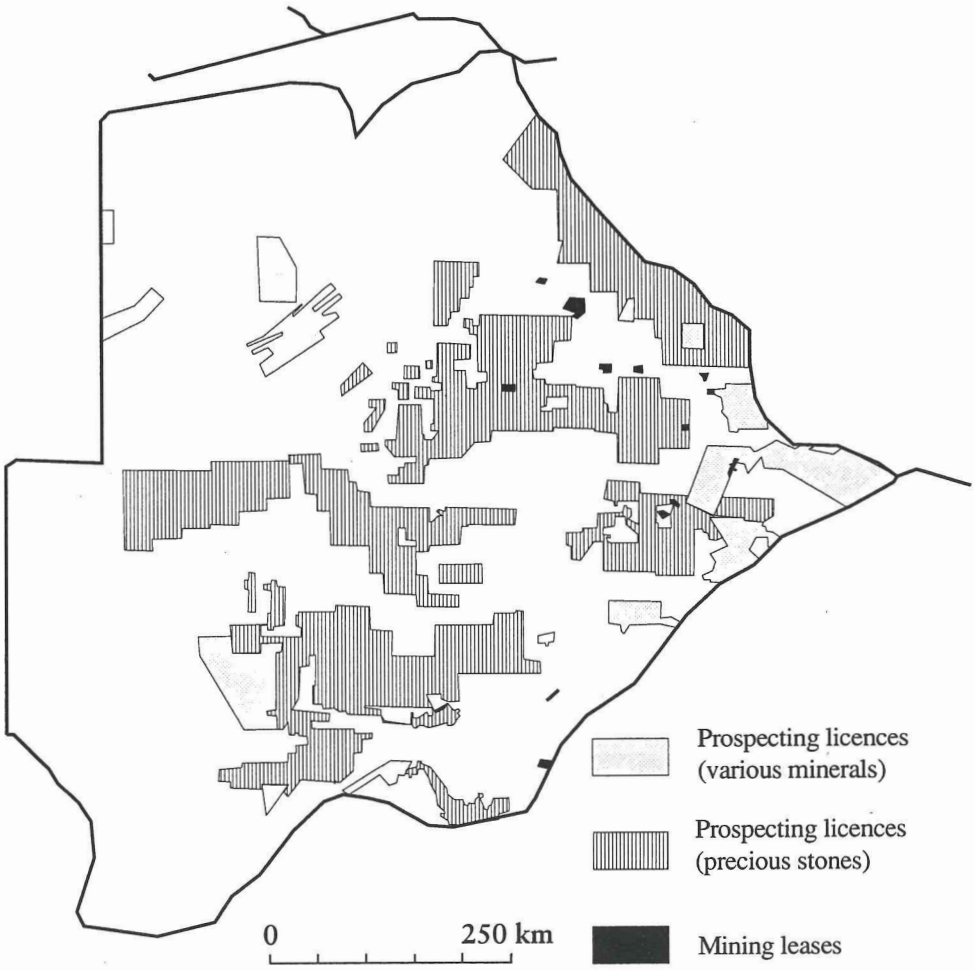
The level of participation is a function of the specific nature of a project, though as a general rule the government, at exploitation stage, expects to be granted, free of consideration, shares in the range of 15 to 25 percent and to have an option to purchase additional shares. In pursuance of this policy the Botswana Government is a shareholder in all major mining projects. The Government holds 50 per cent, 15 per cent and 48 per cent of the shares in companies operating diamond mines, copper/nickel mine and Soda Ash/sodium chloride project at Sua Pan. In small mines, shareholding has been restricted to 15 per cent. The 50/50 partnership between the Botswana Government and De Beers reflected the dominant role of diamond mining in the economy of Botswana, the special arrangements for marketing Botswana diamond through the Central Selling Organisation and the mature relationship developed between Government and De Beers over many years of negotiation and cooperation. On Sua Pan project, government planned to reduce its shareholding by selling some of its shares to Zimbabwean and Zambian interests and to some international organisations. However the weakening of the soda ash markets during and after implementation of the project seems to have hitherto discouraged participation of these parties.

With regard to tax, mineral projects, especially small ones, are taxed at the tax rates applicable to any commercial enterprise. The present rate is 40 per cent. For capital expenditure, including exploration expenditure, the Income Tax Act provides a write-off schedule of ten years or the life of the mine whichever is shorter. The Act also provides machinery for counteracting transfer payment practices. The government long recognised that major mineral projects normally do not easily fit into the prescribed tax set-up and consequently the tax legislation makes provision for special tax agreements, which after conclusion have to be ratified by Parliament. These agreements have tended to provide some tax dispensations such as rapid write offs and for additional profits taxes to be applied if the mineral projects performed better than anticipated.

Royalties are payable on all exploited minerals in terms of the Mines and Minerals Act. These are seen as constituting direct remuneration for the sale or alienation of the nation's mineral resources. They are an allowable tax deduction. They are not fixed for all time but may be adjusted upwards and downwards generally or in respect on specific projects by regulations promulgated by the Minister in terms of the Act. The royalty rates on the gross market value of various minerals and mineral products presently in force are summarised in Table 2. Gross market value is defined as being the gross marketable value of the mineral or mineral product, less any costs incurred for transport of output prior to sale or disposal, for insurance and such other costs as the Minister may allow.

In the past the private sector companies have tended to be worried by this power to change the royalty , though they have appreciated the flexibility if exercised down-

Areas in Botswana held under prospecting licences and mining leases as at 1st January, 1993.



wards, forgetting that while the Government is eager not to sell the national birthright it is also desirous of not killing the goose that lays the golden egg. The Government fully recognises the role of the private sector and accepts its entitlement to a reasonable rate of return. Therefore in practice the Minister's power have been reasonably exercised.

Generally a simple fiscal and financial framework devoid of artificial incentives and providing scope for dealing with unforeseen circumstances is to be preferred. It is believed Botswana has established a track record of negotiating fair agreements with the multinational mining corporations. Botswana is also aware of the school of thought advocating for legislative framework that spells out all the terms in advance. While the approach may reduce uncertainty on the part of the investor in the main it is not likely to result in fair deals where major projects are involved.

Mineral exploration

Mineral exploration in Botswana is coordinated by the Department of geological survey which consists of a Directorate and four operational divisions: Economic geology, Regional geology, Geophysics and Hydrogeology plus an administrative division. Support to the divisions is provided by the Chemistry and Industrial Minerals laboratories, Drawing office, Library and records and Drilling sections. The department's main functions are to gather, assess and disseminate all data related to rocks, deposits and groundwater resources of Botswana. It is the main arm of government servicing mining companies at exploration stage. Therefore the efficiency with which the department carries out its duties is a major determinant in the promotion of mineral exploration.

Mineral exploration in Botswana is governed by three Acts: the Mines and Minerals Act, which deals with the exploration and mining of minerals, the Mineral rights in Tribal Territories Act which deals with the exploitation of industrial minerals by various tribes for domestic purposes and finally the Petroleum (Exploration and Production) Act which deals with the exploration and production of petroleum.

In Botswana concessions can be granted to individuals and companies. There are three types of exploration concessions. These are a reconnaissance permit, a restricted prospecting licence (RPL) and a prospecting licence (PL). A reconnaissance permit can cover any size of area but has to exclude areas held under prospecting licences or mining leases by others. The Permit can last for a maximum period of one year and it is offered free of charge. The only obligation to government is that a report on the activities within the permit area be filed with government within three months after the expiry date. A reconnaissance permit can be relinquished at any time before the expiry date.

A prospecting licence on the other hand covers a maximum of 1000km^2, can be issued for a maximum period of 3 years and can be renewed two times each time for a period of two years. At the end of each period the prospecting company is required to relinquish 50 per cent of the area. There is a nominal rental charge of 1 BWP per square km or a minimum of 250 BWP for a prospecting licence. Companies can hold as many licences as they wish provided they have the resources to carry out approved satisfactory work programme in them. A restricted prospecting licence is very similar to an ordinary prospecting licence except that it applies to Building and Industrial minerals and normally covers a maximum area of 10 km^2.

Applications for prospecting licences are made to the Minister of Mineral Re-

sources and Water Affairs through the Director of the Geological Survey Department. Before a PL application is processed a satisfactory work programme and an accompanying expenditure commitment have to be provided. The minerals being sought have to be stated and the area covered by the PL defined in terms of coordinates. Parts or the whole of a PL can be surrendered any time during the life of a prospecting licence. Finally it must be stressed that discovering a deposit in a licence area does not guarantee mining rights over the orebody. There is still a need to apply for a mining lease to the Minister through the Mining Commissioner and it is at this stage that serious negotiations with government through the Mineral Policy Committee begin.

The survey undertakes grass root type exploration in those areas where the private sector is not active such as basic geological mapping and industrial minerals assessment. The policy is that the Survey should undertake exploration work and gather information to a level where the private sector would be encouraged to apply for licences and carry out more detailed prospecting.

The Geological Survey monitors work by the private sector to ensure that they abide by the work programme and expenditure commitments. Members of the Survey also physically visit the different companies in the field to make sure that companies are indeed carrying out prospecting work. They also ensure that quarterly, relinquishment and terminal reports are filed with the Survey as required by the Mines and Minerals Act.

Botswana has received significant donor assistance in the gathering of valuable geological and mineral exploration information crucial for encouraging prospecting by the private sector. Bilateral and multilateral technical aid projects are also coordinated by the Survey. These aid projects undertake work directed to areas where the geology is not well known. Since the late 1970s several aid funded projects have been undertaken in Botswana. The first was a CIDA sponsored aeromagnetic survey which covered 80 per cent of the country. The remaining 20 per cent has now been covered by an EEC funded aeromagnetic survey. As a spin-off from the aeromagnetic surveys, followup drilling projects have been undertaken with the help of the Japanese, Germans, Swedes and the British. Work done with the assistance of these aid agencies has proved beneficial in that some of the project areas were subsequently taken up for prospecting by the private sector. For example PLs were awarded to Goldfields, Ampal Ltd, and Molopo Botswana over the Molopo farms complex which was the subject of the British aid programme. Other aid projects included the Petro Canada sponsored seismic survey and a followup drilling project in the deep western basins of Nossop–Ncojane and Passarge basins to evaluate their hydrocarbon potential. An integrated geophysical survey over these basins was also sponsored by the EEC. In addition the EEC sponsored an airborne electro-magnetic survey in parts of Eastern Botswana where the target was base and precious metals and groundwater.

In Botswana all reports pertaining to mineral and groundwater can be obtained from the department of Geological Survey. The reports include internal reports which are produced by the survey staff and kept in the library. These types of reports are not for sale but can be examined in Lobatse and photo-copies made. There are also bulletins, maps and memoirs produced by survey staff which are for sale. A list of all available publications is produced yearly and can be made available to other parties and the private sector on request. It is government's policy to have all reports, including those generated by donor funded projects, released as quickly as possible since the main aim of the projects is to encourage work by the private sector in areas which are initially geologically less attractive.

Information on exploration work carried out by the private sector is also kept at the Survey. The information includes quarterly reports, bulletins and relinquishment reports. All these documents are kept confidential while prospecting licences are active. Once the licences have expired, all these documents are put on open file so that they become public information. Cores from both the private and public sectors'

Table 3

Number of prospecting licences and expenditure 1985–1993 (January 1st of each year)

	1985	1986	1987	1988	1989	1990	1991	1992	1992
Diamonds	40	48	38	75	96	193	213	216	222
Coal	9	7	6	6	4	4	4	4	4
Base and precious metals	14	17	16	24	38	54	53	61	61
Others	3	4	4	2	2	10	14	17	18
Total	66	76	64	106	140	261	284	298	305
Total prospecting expenditure MBWP	12.2	12	11	21.3	16.1	51	78.2		

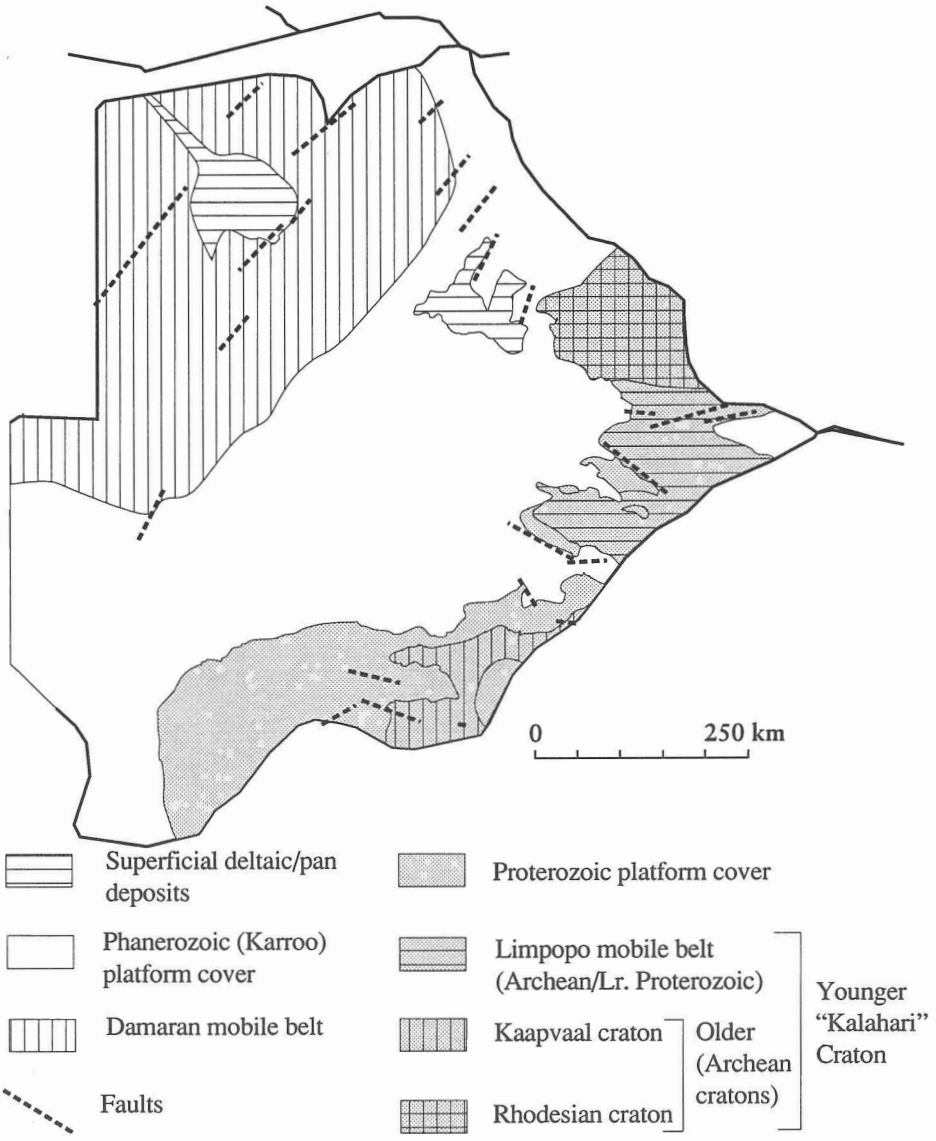
Geological framework of Botswana. The geological contacts are defined, or assumed.

work are stored in a coreshed at the Survey. The core can be examined and sampled by interested parties at no cost. The private sector documents on open file are available for inspection at no cost and photo copies of any of them can be made.

The Geological Survey publishes a map showing active mining leases, prospecting licences and reconnaissance permits twice a year. The January 1993 map reproduced on page 7 depicts areas of Botswana under active prospecting licences and mining leases. Out of the 305 active prospecting licences, 222 were for precious stones and the remainder were for various minerals which include industrial minerals, base metals, platinum group metals, precious metals and coal. Companies actively exploring for diamonds included De Beers Prospecting, Seltrust, Molopo Botswana, Kalahari Exploration, Gem Resources Botswana, Cominco Resources and Ampal. Those actively prospecting for other minerals include BP, CDF, Seltrust, Cominco Resources, Falconbridge, Phelps Dodge and Goldfields.

Table 3 shows the growth of prospecting activity in Botswana in recent years in terms of number of prospecting licences for various minerals and total expenditure.

This section has described the functions and role of the Department of Geological Survey in the servicing of mineral exploration in Botswana. The level of mineral prospecting activity in the country has also been discussed. Without a relatively efficient and streamlined Geological Survey Botswana would not have attained the level of prospecting and mineral development achieved to date. Namibia will undoubtedly be reviewing the effectiveness of its frontline institutions including Geological Survey as it proceeds with promotion of mineral investment. Botswana should be ready to share experience in this area.

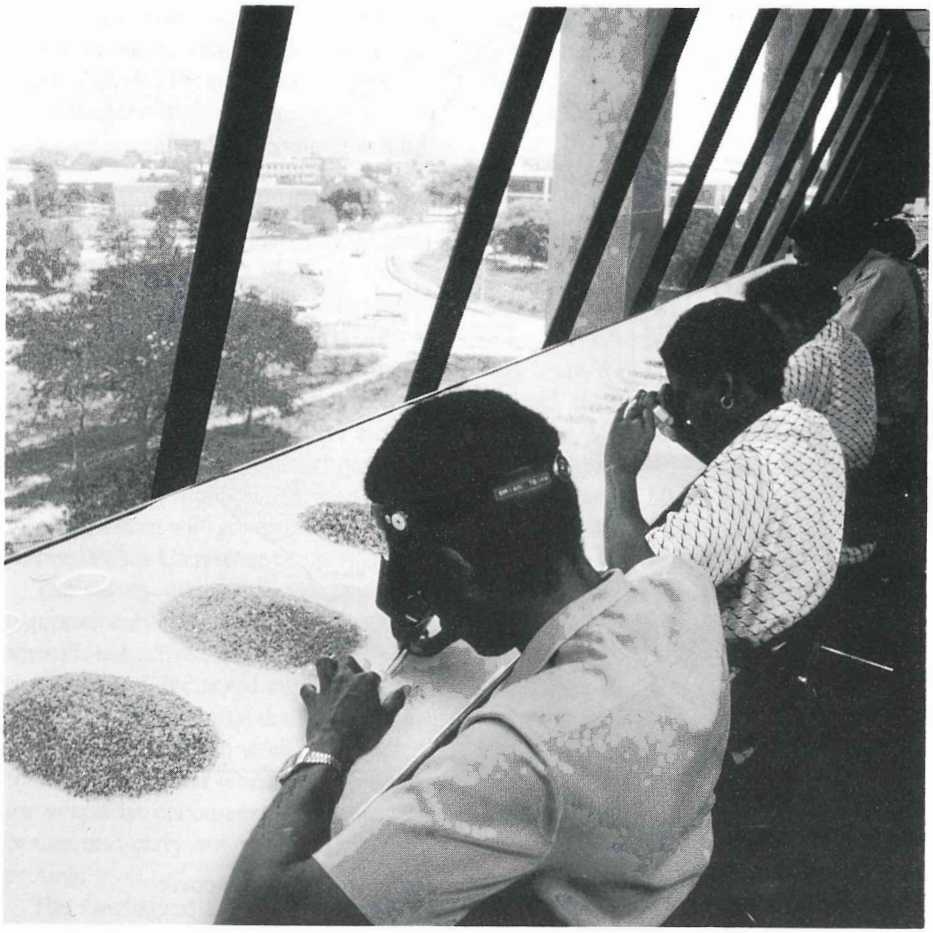


Mineral exploitation

The Department of Mines under the ambit of the Ministry of Mineral Resources and Water Affairs plays a pivotal role in servicing the mining industry at exploitation stage. It has the prime responsibility of ensuring that the Government mineral development policies are effectively implemented and mineral legislation respected. It constitutes a major contact point with mining companies and is therefore organised to make a major contribution to promotion of mineral investment in Botswana.

The Department's structure consists of four major wings namely, Development and operations, Inspectorate, Air pollution and Administration. The Department takes the lead in the evaluation of mining lease applications, and monitors and inspects ongoing operations. Its staff also provide technical and professional support to Government directors serving in mining companies and negotiating teams.

The statutory powers of the Department in servicing the mining industry are derived mainly from the following mineral legislation. Mines and minerals Act, Mineral Rights in Tribal Territories Act, Petroleum (Exploration and Production) Act, Mines, Quarries, Works and Machinery Act and Atmospheric Pollution Prevention Act.



Diamond sorting at the Botswana Diamond Valuing Company in Gaborone.

The major mining multinational corporations are not interested in the development of small mines. Consequently the Department of Mines has been assigned the prime responsibility of promoting the growth of this subsector which has the potential to contribute to job creation and diversification of the economy. The services offered by the Department to small mines development include the following:

1. Undertakes laboratory scale metallurgical testwork and advises the mines on optimal recovery methods and procedures.
2. Determines efficient and safe mine designs, methods and procedures for extracting the various minerals.
3. Undertakes prefeasibility and feasibility studies of small scale mines and advices the enterpreneurs on their financial viability.
4. Advises small scale mines of Financial Assistance Policy procedures and requirements of other sources of finance, etc.
5. Regularly inspects small scale mines to provide guidance on safety standards, process improvement, etc.

Small scale mining has been defined to refer to a labour intensive mining project with an investment capital typically ranging from 50 000 to 2 MBWP. The employment creation motive has been a major factor in the promotion of small mining projects.

The map on page 5 gives details of the small mines leases in force as well as the location of the small mines which are concentrated around Francistown. There are also 16 licensed quarries extracting various industrial minerals including aggregate, limestone, clay, sand and granite.

The various wings of the Mines Department have had to be strengthened in commensurate with the growth of mining in Botswana. The Development and operations wing has been particularly active on the promotion side and in the servicing of the Mineral Policy committee and negotiating teams.

As already stated major mining projects have warranted negotiating special agreements. We therefore take up the subject of negotiations in the section below dealing with cooperation with mining multinational corporations.

Cooperation with multinational mining corporations

It has already been stated that Botswana, being a mixed economy, has welcomed the involvement of the private sector in the exploitation of the its mineral wealth. Such cooperation has largely been with multinational mining corporations and for major projects has been governed by special agreements negotiated at exploitation stage. The potential benefits these corporations can offer to a host developing country such as Botswana are the technical, managerial and financial services at all stages of a mining project, from prospecting through mining and processing to marketing of the end product. A major task of the host government is to ensure that these services are offered at least cost in terms of both financial and overall socio-economic benefits. The starting point is the development of a negotiating strategy for each project and the fielding of an effective negotiating team. Botswana has accumulated considerable experience in negotiating with mining companies. A few comments on the subject of negotiation and the funding of some projects in Botswana are considered in order.

Multinational corporations possess the requisite manpower and are well placed to mobilise strong and well organised negotiating teams which are not easy to match. To obtain the best results the host government should avoid hurrying into negotia-

tions before it is thoroughly briefed and prepared and has assembled the qualified manpower. The structure of the negotiating teams should be given due consideration before negotiations commence. It is important that membership which reflects required disciplines and interests should be stable during negotiations. Varying representations which often lead to disagreements in the presence of the other party erodes the strength of the team. Experience has also shown that maintaining a team of negotiators through several contract negotiations improves their experience and pays dividends at the end. The host Government should not hesitate to bring advisers to assist in the negotiation process. Here again advisers are more likely to be effective when they have been retained for a long period of time. During negotiations drafts are often exchanged as bases for discussion. A draft normally reflects or leans towards the requirements of the party that has drafted it. Therefore the host government team should be well advised not to leave the whole initiative to multinational corporation but to develop a habit of also setting out in its own language what it requires. It is considered a realistic agreement is one that is fair but contains areas of flexibility to enable changes in the future, when more information may be available, to be dealt with peacefully rather than by confrontation.

The duration of the agreement is often an issue of fundamental importance. While on the government side there could be advantages in minimising its long term commitment in order to leave flexibility for responding to changes in technology, mineral prices and the general development policies, the mining companies have tended to favour maximising fixity of elements in the agreement and its duration especially if they consider such agreement a good deal. They tend to favour predictability and thus to tie the government hands in as many aspects as possible.

The historical capital cost of building the Selebi Phikwe copper/nickel mine and surface installations amounted to 397 MBWP of which 37 MBWP was equity. The major sponsoring shareholders were Amax and Anglo American. The government was allocated 15 per cent of equity free of consideration. The requisite infrastructure, mainly power, water, roads, railways and township were built from funds raised by government from donor agencies including the World Bank, USAID and CIDA. The total cost was 56 MBWP. As most of the financing for both the mine and infrastructure came from outside sources, the project was not a drain on local resources.The arrangements governing the project were extremely complex and took a long time to negotiate and were enshrined in some forty interlocking agreements. In terms of the various completion guarantees, the major shareholders committed themselves to building the mine complex and ensuring that the plants performed to design specifications. When technical problems arose later, the shareholders met their commitments by injecting additional funds and expertise. The shareholders were also ultimate guarantors of some of the infrastructure loans.

Following a prolonged series of negotiations the Orapa, Letlhakane and Jwaneng mines were built at a total original establishment cost of 291 MBWP. Orapa and Letlhakane mines were financed 100 per cent by De Beers by way of equity subscription. Jwaneng was also financed by equity subscriptions in the ratio 80 per cent De Beers and 20 per cent Government of Botswana. The government contribution was optional and was exercised to increase its share of the profits. Notwithstanding these methods of funding the government became a 50 per cent shareholder. Subsequent expansions of these mines which will cost a total of 658 MBWP, when the Jwaneng fourth stream is complete, have been financed from internal savings, the ultimate sharing of the burdens being functions of special agreements entered into between the parties. Most of the original infrastructure cost was included in the project funding. It is therefore evident that the original funding of diamond mines was also not a drain on national savings.

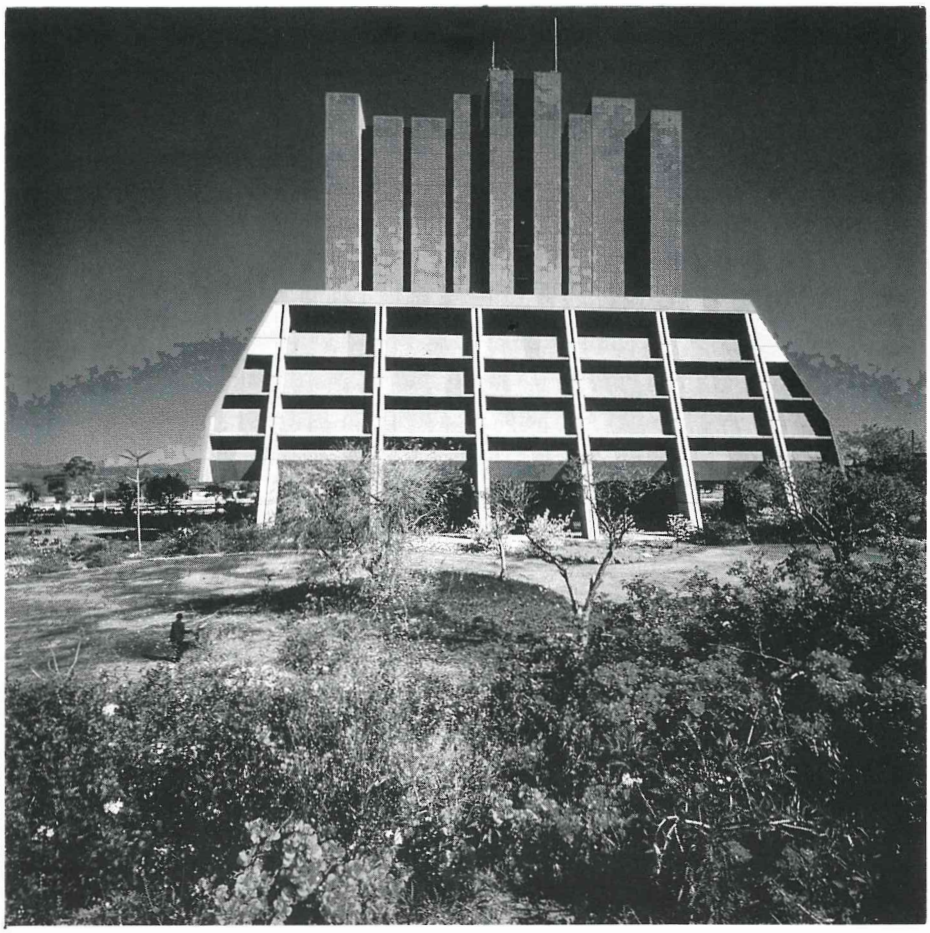
The soda ash project at Sua Pan presents a different picture in that the government and other local sources made a major contribution to the capital cost of the project. The project was initiated as a joint venture between AECI and the Government of Botswana with 52 per cent and 48 per cent shareholding respectively. The cooperation agreement empowered each partner to invite participants of its choice to acquire part of its share of the equity. In the event AECI allocated part of its holding to Anglo American and De Beers Holdings. As stated earlier the Government of Botswana has so far not been successful in disposing of some of its equity and remains a 48 per cent shareholder of Soda Ash Botswana. By June 1992 the total capital cost of the project was 870 MBWP of which 428 MBWP came from shareholders as equity, 60 MBWP as loan from Botswana banks and the rest as export credit and loans from external sources. In addition the government and some of its parastatals provided supporting infrastructure at a total cost of 212 MBWP.

The next major mining project, namely Morupule Colliery was financed in its entirety by Anglo American Corporation. Hitherto the government has not taken equity stake in the project.

In general the experience in Botswana has been that provided the particular project is feasible, technical sound and economical and financial viable finance can always be packaged from one or more of the project sponsors, donor agencies, commercial banks, export credit institutions, end users of minerals to be mined and local sources. Greater part of the finance invested in mineral development to date has come from outside sources and therefore sparing local savings for other investments.

Environmental conservation

The expansion of industry together with unprecedented growth of world population have increased the gaseous, liquid and



Orapa House, Gaborone, where diamonds are sorted by the Botswana Diamond Valuing Company.

solid wastes discharged into the atmosphere, water and on to the land. The general effect has been that the absorptive capacities of these media have gradually come under serious strain. Consequently the environmental media which assimilate the wastes can no longer be regarded as free goods but must be taken as natural resources of great value, requiring attention by public authorities. It was in recognition of these environmental problems posing a threat to the continued civilised existence of man in this planet, that a United Nations Conference on Human Environment was held in Stockholm, Sweden in 1972 and the second one in Brazil in 1992. The outcome of these conferences, together with other national and international consultations have emphasised the need for a coordinated approach, at international, national and project levels, in devising and implementing measures for the protection of the environment. A coordinated approach at all levels is essential since the main transporters of waste, namely water and air, move freely across international borders.

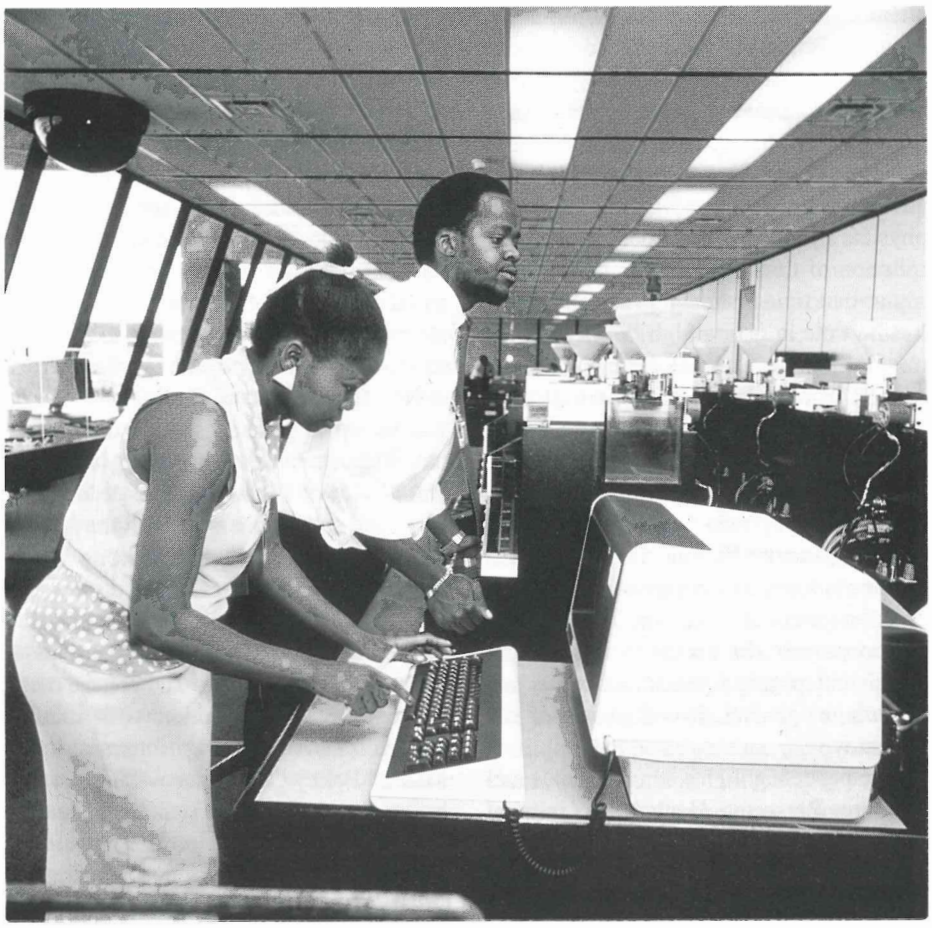
There may be temptations in some sparsely populated countries such as Botswana and Namibia to pay less attention to the environment, on the grounds that the media within their borders still have excessive absorptive capacity, and pursue for example the objective of growth without taking into full account environmental tradeoffs in project appraisal. Botswana has been paying considerable attention to environmental protection in the formulation and implementation of mineral projects. Guidelines and control measures have been codified in acts of parliament which have left room for the minister to promulgate detailed regulations from time to time. The acts have been supplemented by further commitments to environmental protection in the concession agreements that have been entered into with mining companies. Timely action is necessary since environmental rehabilitation measures taken too late are likely to be more costly, moreover the costs would unfairly fall on future generations.

Mineral projects have been and are potentially among the major degraders of the environment. Mining and mineral processing can scar the land, emit toxic or abonoxious gases and dust particles, discharge liquid effluent impregnated with dangerous chemicals and also can produce intolerable noise. These side effects must be full taken into account in the planning and cost benefit appraisal of mineral projects. Generally a policy of controlling pollution at source using the best available technology and fully internalising all the environmental costs is preferable for a number of reasons.

Apart from encouraging project promoters to earnestly seek and adopt less damaging processes it facilitates measurement of costs and benefits prior to project implementation. In any event it is easier to monitor and control pollution at source than to identify, monitor and control its effects. Internalisation is also likely to reduce administrative costs incurred by monitoring national agencies.

Apart from the government policy pronouncements on the environment, including the recently adopted National Conservation Strategy, there is a body of legislation which provides legal framework for controlling the impact of mining operations on the environment. The Mines, Quarries, Works and Machinery Act, in addition to providing for matters affecting safety, health and welfare of persons employed in mining operations it empowers the Minister to make regulations inter alia for the "protection and preservation' of mines and for the protection and rehabilitation of the environment" where it is affected or likely to be affected by mining operations. The Mines and Minerals Act restricts prospect-

Computerised sorting at the Botswana Valuing Company in Gaborone.



ing within national parks and enforces rehabilitation of sites of mining operations on expiry of mining leases or termination of operations. The Atmospheric Pollution Prevention Act makes provision for the prevention of pollution of the atmosphere resulting from the carrying out of mining and other industrial operations.

All mining leases issued or agreements entered into since independence contain clauses on the environment to supplement or elaborate the provisions of the law. For example, the Master Agreement entered into between the sponsors of the Selebi Phikwe BCL copper/nickel project and the Government stated that "the company shall conduct its operations in such a manner as to prevent, or, where prevention is not reasonably practicable, to mitigate consequences adverse to the environment and/or to the health of people affected by such operations".

The Selebi Phikwe copper/nickel mining, smelting and power station complex constituted a serious threat to the environment arising from sulphur dioxide gases that were to be emitted and from other wastes. To forestal the problem the smelter complex incorporated a sulphur reduction plant to reduce the amount of sulphur dioxide emitable into the atmosphere and in the process produce elemental sulphur as by-product.

The smelter and power station stacks were to attain heights of 525 feet and 250 feet respectively. These heights were considered enough to afford dilution and dispersion of toxic gases to acceptable concentration levels before reaching tree-line and ground levels. In the event the sulphur reduction plant did not work and other measures of controlling sulphur dioxide emissions had to be adopted.

The diamond mines, which are all opencast operations, posed no serious environmental hazards from emissions to the atmosphere and toxic effluent as the processing plants are electrically driven and the extraction processes are largely mechanical or physical and not chemical in nature. Various measures were however taken to ensure that diamond mining in Botswana remained as environmentally friendly as possible.

The Sua Pan soda ash project became alive to environmental concerns throughout the developmental stage, and even now Soda Ash Botswana has a full time environmental officer. For example, a large sum of money was spent on installing powerlines underground in order to save flamingo population that seasonally frequent the area of operations. Even some tree species had to be replanted in safer locations to give way to operations.

The above expose will have shown the progress Botswana has been making in meeting the objective of promoting environmental friendly mineral development. As far as can be ascertained Botswana is among the countries which have made considerable headway in codifying environmental control legislation. A major aspect of the policy is one of ensuring that environmental protection measures are paid for by operations i.e. internalised. On the control side, the country still faces shortage of local manpower with requisite expertise. Whereas in the past multinational mining corporations were uncooperative, nowadays they have become positively sensitive to environmental conservation concerns. This should augur well for Namibia which is welcoming international private sector investment in the development of its mining industry.

Concluding summary

The paper has discussed some aspects of Botswana's experience in promoting mineral development since independence over a quarter of a century ago. The discussion was not intended to be exhaustive but to be

an invitation to the Namibian authorities to examine Botswana's experience in more detail for possible lessons as they proceed with their mineral development programme.

Botswana obtained independence being a very poor country with undeveloped physical and social infrastructure. The contribution of mining to Botswana's economy at that time was negligible. Botswana lost no time in giving high priority to promotion of mineral development. The success of the strategy has been vindicated by the dominant role the mining sector has played in the growth of Botswana economy. Mining has helped graduate Botswana from the list of poorest and least developed countries and has become the biggest contributor to foreign exchange earnings, GDP and Government revenues. Mining has helped provide the means to improve the social and physical infrastructure and to embark on general diversification of the economy.

The paper highlights some policies and measures Botswana adopted in its mineral development strategy. The mineral development policy objectives have been intended inter alia to achieve the general goal of maximising the mineral sector's returns to the country through maximisation of economic and financial benefits, creation of employment, generating of value-added and multiplier effects while minimising damage to the environment.

These objectives are being addressed and various degrees of success have been achieved. Botswana realised at the outset that it lacked both finance and expertise to undertake successful mineral development on its own. Decision was taken to attract companies with the financial and technical know-how from the international private sector to take the lead. Most of the risk capital invested in mineral exploration and exploitation came from that sector and other external sources. Government concentrated on creating a conducive environment for private sector investment.

Through negotiations mineral rights were surrendered to the state by various groups. A liberal foreign exchange control regime was maintained which permitted free repatriation of dividends and profits and unrestricted importation of goods and services. Extensive ground and aeromagnetic geological surveys were undertaken with the assistance of aid agencies to improve prospectivity of Botswana. On the political front the country has enjoyed internal peace, rule of law and multiparty democracy. All these contributed to stability needed for business activity to flourish. A strong Department of Geological Survey was set-up to gather, assess and disseminate all data related to the geology and mineral wealth of Botswana. The department facilitates and monitors work of the private sector at exploration stage. A strong Mines Department was also set up to ensure that Mineral Development Policies were implemented at exploitation stage. These departments provide service to and are the main channel of communication with mining companies. A standing interministerial Mineral Policy Committee was also established to keep mineral policies under review and guide negotiations with mining companies.

The Botswana Government has maintained a fiscal policy towards mineral development consisting of equity, taxation and royalties as major elements. The level of equity participation has been a function of negotiations and has been maintained in the range of 15 to 25 per cent free of consideration with option to purchase additional shares. Diamond mining commands the highest government participation at 50 per cent.

Small mineral projects are taxed at tax rates applicable to other commercial enterprises. All major mineral projects have warranted negotiations resulting in special agreements. Royalties, which are seen as the minimum payment for the privilege of exploiting the nations non renewable resources, are payable on all minerals in the range of 3 per cent to 10 per cent of gross market value.

At independence Namibia inherited an economy with relatively high GDP and a more developed social and physical infrastructure. The contribution of mining was already substantial and valuable basic geological information had been gathered. Namibia is also embarking on promotion of mineral development when the geopolitical situation in our region has improved. Namibia is therefore starting mineral development promotion from a slightly more developed foundation compared with Botswana. Consequently it stands a better chance of moving forward quickly. It has already established stable political environment and need to reinforce services to be provided by her geological and mining departments as well as strengthen her mineral policy and negotiating teams. Namibia will also have to contend with the problem of renegotiation with existing operators with a view to persuading them to operate in consonance with new mineral policies. The country is indeed well placed to benefit from the experience of other mining countries such as Botswana and come up with a successful mineral investment programme.

Botswana like Namibia is dependent on too few dominant mineral projects and consequently vulnerable to market changes. The strategy must therefore be geared to both the diversification of the mining industry and the economy at large. ■