

# Guyana Geology And Mines Commission

## 1994

## Annual

OMAI

GEORGETOWN



## Report

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Upper Brickdam  
Georgetown  
Guyana

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## **1994 AUDITED FINANCIAL STATEMENTS**

# GUYANA GEOLOGY AND MINES COMMISSION

## ANNUAL REPORT – 1994

### 1. INTRODUCTION

The Mining Industry continued to experience dynamic growth in 1994, as record production was achieved for the fifth consecutive year for gold, stone and sand. Additionally, significantly more land was alienated for medium and large scale prospecting and small scale mining; and 1,250 square miles of state lands were reopened for prospecting and mining.

Unrefined gold production exceeded 380,000 ounces, of which Omai Gold Mines produced approximately 282,000 ounces (74%) and local operators produced 99,000 ounces (26%). Guyana continued to be a significant world producer of gold.

Revenue accruing from (especially gold) mining had a significant impact on the national economy. According to the Bank of Guyana's Statistical Bulletin for December 1994, gold exports became the single most important source of foreign exchange earnings, accounting for G\$17.5 billion or 28% of total foreign exchange earnings in 1994, eclipsing sugar with 26% of total foreign exchange earnings, bauxite with 18% and rice with 12%. Combined export earnings from mining (gold and bauxite) accounted for 46% - almost half - of total export earnings for 1994.

At the same time G\$743.5 million in direct revenues paid to the central government as Royalty payments from Omai Gold Mines and payments by GGMC to the Consolidated Fund, amounted to G\$186 million above revenue payments in 1993.

Other indicators of continuing growth in the Mining sector were also favourable, as was evinced by the large numbers of licenced dredges, claims and river locations in force, as well as applications for and grants of medium scale Prospecting Permits, and the exponential increase in area under exploration as Golden Star Resources undertook reconnaissance airborne geophysical surveys over three areas totalling 4,375 square miles, in western Guyana. Golden Star Resources expected to spend US\$3.5 million for its airborne geophysical surveys.

The 80% increase in Prospecting Permit applications over 1993 after the establishment of the Medium Scale Sector in October 1992, together with the backlog of applications received in 1993, posed a continuous challenge for the Geological Services and Cartographic Staff who worked hard and commendably to process applications, individually, which gave rise to a large volume of paperwork throughout the year.

On the downside, bauxite production by State owned producers Linmine and Bermine continued to be in decline. Diamond production and exports dipped relative to 1993 levels, the production and export of silica sand, and the production of stone, though improved, fell far short of GGMC's projections for 1994. This was partly because new quarry licences were not granted, as was projected.

The sustained overall growth in the mining industry was educed and directed by the mineral promotion efforts of the GGMC, supported by its programmes and activities.

There were important administrative and personnel changes at GGMC as former director of the Petroleum Unit within the Guyana Natural Resources Agency, Mr. Brian Sucre, was appointed Commissioner from May 01, 1994 and the Petroleum Unit was transferred to the GGMC, thus extending GGMC's portfolio to cover all aspects of petroleum promotion and development. The transfer of the Petroleum Unit resulted in the transfer to the Commission of its technical staff, comprising a geologist, Geological trainee, Chemist, Petroleum Technologist and Petroleum Engineer. As a result of Mr. Sucre's appointment the Acting Commissioner, Deputy Commissioner and Manager, Geological Services, reverted to their substantive positions from May 01, 1994.

An important aspect of the GGMC's programmes has been to assiduously and proactively encourage and support the reintroduction of technical training in Mining and Geology at the University of Guyana, that is expected to benefit the Commission and the wider Mining Industry. The Commission saw the fruition of its efforts when its first batch of six Geotechnicians graduated with the Diploma in Technology. In addition, two staff members graduated with the Bachelor's degree in Mining Engineering. However, the Commission was disappointed that the BSc degree programme in Geology at the University of Guyana did not materialise.

Although new interest was expressed in the latter part of the year, active petroleum prospection contracted. Early in 1994, MOBIL completed its seismic surveys aimed at finding drilling targets. MOBIL withdrew from the Pomeroon Block off-shore concession in July 1994 and from its Technical Agreement with the Government of Guyana in November 1994. Joint Venture partners TOTAL and TEXACO maintained their interest in the Pomeroon Block.

Senior officials of STAATSOLIE, the State-owned Petroleum Company of Suriname, visited Guyana in November 1994 to establish with GGMC counterparts, a framework for technical co-operation in Petroleum development.

The Commission, following its mandate, continued to serve the Mining Industry through its technical programmes; inspections of Mines, Quarries and Prospecting Licence properties; regulation of the industry, claim verification, and dispute resolution; and publication and distribution of its quarterly publication, *Mineral Industry Survey*. A geochemical reconnaissance project was initiated in the New River area, covering from an area of approximately 630 square miles extending along New River from Barrington Brown Falls to Maripuri River mouth, and from Oronoque Falls, extending south along Oronoque River and southeast along an un-named right bank tributary of New River.

Also within its technical programmes, a Mercury Retort was fabricated from simple, readily available cheap materials and was promoted for use by local gold miners, and the Fine Alluvial/Eluvial Gold Recovery enhancement Project finalised the design of its mobile demonstration processing plant. The CDB STEP Fund-supported study of the Jewellery Industry initiated in October 1993 was completed in July 1994. The expert Jeweller's comprehensive report outlined a plan of action with training of Guyanese jewellers as a major

component, for the further expansion of the Jewellery Industry starting with the CARICOM markets, and raising the quality of Guyanese jewellery to internationally accepted standards.

For 1995, the GGMC projects even further growth in the Mining Industry, with increasing production of gold, diamond, sand and stone, and additional exploration in new Medium and Large Scale prospection properties. It is also projected that there will be renewed efforts in petroleum prospection resulting from current promotion efforts that target the Essequibo off-shore block.

Sound environmental management practices; enhancement of fine gold recovery; generation, synthesis, and dissemination of geological information and maps; efficient management and administration of mineral properties/data; petroleum development promotion and continued training in technical skill areas, will maintain prominence as the GGMC works to attain sustainable long term development of the Mining Industry, that will greatly and increasingly benefit the Guyanese nation.

## **1.1 Review Of The Mining And Petroleum Sectors In 1994**

Despite falling short of GGMC's production estimates, and declining gold production by local miners in the last quarter, overall in 1994, the Mining Industry continued to experience steady expansion, growth, revenue generation and increasing importance to the national economy. This growth is set to continue in 1995. Bauxite production by Linmine and Bermine, and Diamond production, were notable exceptions to the overall trend of sectoral growth.

### **Mineral Production**

For the fifth consecutive year gold production increased so that the achievement of approximately 282,000 ounces of unrefined gold from Omai Gold Mines Ltd (252,000 ounces of refined gold) and 99,000 ounces of unrefined gold from other local producers set yet another production record for gold.

**Declared diamond production** fell by 32% from 50,000 cts in 1993 to 34,000 cts in 1994, and similarly diamond exports fell by 32%, from 44,000 cts in 1993 to 30,000 cts in 1994. The greatest part (61%) of diamond exports went to Belgium, 27% went to the United States and 12% was shipped to Brazil.

**Declared stone production** which increased by 45% in 1993, increased by a further 42% from 106,000 tons in 1993 to 150,000 tons in 1994.

**Reported sand production** increased by 66% from 197,000 tons in 1993 to an estimated 327,000 tons in 1994, of which 53,000 tons were exported.

**Bauxite production** by Aroaima Bauxite Company increased by 5% from 1.406 million tonnes of dried and shipped metallurgical grade bauxite in 1993 to 1.483 million tonnes in 1994. In addition 77,000 tonnes of chemical grade bauxite was produced and shipped by Aroaima Bauxite Company.



At Linmine's and Bermine's operations, however, fortunes were reversed. The decline in bauxite production witnessed from 1991 at Bermine persisted, as Bermine's total production of final products slipped from 465,000 tonnes in 1993 to 322,000 tonnes in 1994, a decline of 31 %. After showing a slight improvement in 1993, Linmine's Bauxite production hit a low of 211,000 tonnes of total final products, a 48% decrease from 1993's production of 407,000 tonnes of final products.

Overall, total production of bauxite final products remained at the same level as 1993, since increased production by Aroaima just about equalled the combined reduction in tonnages produced by Linmine and Bermine. An important factor, however, is that the tonnage of higher value refractory grade bauxite declined while the tonnage of lower value metallurgical grade bauxite increased.

**Table I- Comparative Mineral Production from 1992 to 1994**

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1994 as % increase over 1993</u>
Gold, oz unrefined (local miners)	80,000	87,000	99,000	+14%
Gold, oz unrefined approx (*OGML)	-	223,000	282,000	+26%
Diamond, carats	45,000	50,000	34,000	-32%
Diamond exports, carats	37,000	44,000	30,000	-32%
<b>BAUXITE (tonnes)</b>				
<b>Linden (LINMINE)</b>				
Calcined Refractory Grade RASC	215,000	261,000	58,000	-39%
Calcined Abrasive Grade AAC	3,000	6,000	-	
Dried Metallurgical Grade MAZ	94,000	65,000	21,000	-68%
Chemical Grade CGB	<u>79,000</u>	<u>75,000</u>	<u>32,000</u>	<u>-57%</u>
Total Final Products	91,000	407,000	211,000	-48%
Ore Mined	1,700,000	1,300,000	1,740,000	+8%
<b>Kwakwani (BERMINE)</b>				
Dried Metal Grade	388,000	332,000	185,000	-44%
Chemical Grade CGB	122,000	121,000	122,000	+1%

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<b>1994 as % increase over 1993</b>
Cement Grade ACGB	6,000	10,000	6,000	-40%
Calcined Refractory Grade RASC	-	6,000	15,000	-150%
Calcined Abrasive Grade AAC	<u>+</u>	<u>+</u>	<u>2,000</u>	
Total Final Products	516,000	469,000	321,000	- 32%
Ore Mined	253,000	402,000	446,000	+ 11%
<b>Aroaima</b>				
Dried, shipped bauxite (metallurgical and chemical grade).	1,406,000	1,216,999	1,440,000	+ 18%
Ore mined, DMT	NA	1,320,000	1,462,000	+ 11%
<b>STONE</b>				
Stone, tons	73,000	106,000	150,000	+ 42%
Sand, tons	500	197,000	327,000	+ 66%

\*OGML = Omai Gold Mines Limited. NA - Not Available

Sources: GGMC's Records; Bidco's Marketing Department

**Table 2 - Revenues from Mineral Production - G\$ million (Taxes and Duties excluded).**

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<b>% increase over 1993</b>
Fees and Fines	16.47	17.3	18.9	+ 9%
Licences	13.71	11.93	14.0	+17%
Royalties (*OGML)	-	47.74	613.5	+37%
Royalties (Other)	168.94	182.11	253.0	+39%
Rentals - Prospecting/ Mining Permits and Licences; Quarry Licen- ces Geophysical and Geological Surveys	<u>-25.72</u>	<u>72.17</u>	<u>162.0</u>	+124%
<b>Total</b>	<b>224.84</b>	<b>731.20</b>	<b>1,062.2</b>	<b>+ 45%</b>

\*OGML Omai Gold Mines Ltd.

## 1.2 Revenues And Export Earnings

Increasing production and activity in the Mining Industry were translated into higher revenues and export earnings. The Mining Industry played an increasingly important role in the national economy as gold surpassed sugar to become the principal source of foreign exchange earnings. In 1994 gold and bauxite together accounted for 46.3% of our total export earnings, or G\$28.54 billion out of a total of G\$61.7 billion. Revenues from the Mining Industry, (not including taxes and duties) of which Royalty is by far the most important, increased from G\$731.25 million in 1993 to G\$1.062.2 million or a significant 39% (Table 2).

Accordingly, revenues transferred to the Central Government - that is, to the Bank of Guyana and the Consolidated Fund - by the GGMC progressively increased, from G\$75 million in 1992, to G\$557.3 million in 1993 and G\$743.5 million in 1994 (Table 3). This represents a 643% increase in 1993 and a 33% increase in 1994, the main factor being Royalty from Omai which is paid to the Central Government through the Bank of Guyana.

Notwithstanding, there was a significant increase in revenues paid by the GGMC to the Central Government's Consolidated Fund - G\$75 million in 1992, G\$110 million in 1993 and G\$130 million in 1994.

**Table 3 - GGMC's contribution to Central Government Revenues G\$ million**

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>% increase Over 1993</u>
Payment to Consolidated Fund	75	110	130	+18%
OGML Royalty	-	447.74	613.50	+37%
<b>Total</b>	<b>75</b>	<b>557.74</b>	<b>743.50</b>	<b>+33%</b>

In the table following the trend of growth experienced in the Mining Industry in 1994 is borne out by the increasing activity in nearly every facet of the Industry.

## 1.3 Mining Industry Indicators

**Table 4 - Comparative statistics relating to Mining Industry performance from 1992 to 1994.**

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1994 as % increase Over 1994</u>
1. <b>Dredge Licences</b>				
New Licences	167	217	286	+32%
Renewed Licences	<u>336</u>	<u>332</u>	<u>447</u>	<u>+35%</u>
Total	<u>503</u>	<u>549</u>	<u>733</u>	<u>+34%</u>

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<b>1994 as % increase Over 1994</b>
<b>2. Existing Claims</b>				
Land Claims	7,800	9,000	9,600	+7%
River Locations	<u>2,400</u>	<u>2,900</u>	<u>2,900</u>	<u>0%</u>
Total	<u>10,200</u>	<u>11,900</u>	<u>12,500</u>	<u>+5%</u>

**3. Medium Scale**

**Prospecting Permits**

Applications	*202	974	1,753	+ 80%
Permits Granted	-	81	1,137	+1304%

\*(Applications received from October to December 1992)

**4. Approximate acreage held/applied for by Small and Medium Scale Operators**

	500,000	1,700,000	3,000,000	+76%
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**5. Prospecting Licences**

Current		14	13	+14%
New Grants	22	2	3	+50%
New Applications	-	36	50	+39%

\*(32 Applications approved by Minister for issuing)

**6. Geological and Geophysical**

(Reconnaissance)  
Surveys Area  
Covered (sq. mls.)

	-	-	4,375	
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**7. Large Scale Mining/  
Quarry Licences**

Mining Leases (Bauxite excluded)	6 (5 with local ownership)	7 (5 with local ownership)	7 (5 with local ownership)	0%
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Quarry Licences (all with local ownership)	2	3	3	0%
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**8. Areas reopened for  
Prospection and Mining  
(square miles)**

1,250

## **1.4 Other Important Developments**

### **More land for Prospection and Mining**

An important development was the large increase in land available for and under prospection, as Golden Star Resources undertook a nine-month programme of large scale airborne geophysical reconnaissance surveys over a total area of 4,375 square miles in January to October 1994; Closed Areas and State Mining Reserves totalling 1,250 square miles were reopened for prospecting and mining in 1994 and the area held by and under applications for the recently established Medium Scale Prospecting Permit regime, and therefore held by Guyanese Miners, increased sharply from approximately 1.2 million acres in 1993 to approximately 2.9 million acres in 1994. At the end of 1994, a further 32 Prospecting Licences had been approved by the Prime Minister for issuing, representing a further 400,000 acres available for mineral prospecting.

In November 1993 the Minister responsible for Mines and Minerals the Honourable Prime Minister had publicly announced government's intention of re-opening Closed Areas and State Mining Reserves, and granting permission for airborne Geophysical Surveys over large tracts of land.

### **Survey of Guyana's Jewellery Industry**

A Caribbean Development Bank assisted project for the evaluation of the Guyanese Jewellery Industry was initiated in 1993 and completed in 1994. It included an assessment of needs to upgrade the quality of Guyanese jewellery to international standards, identification of training requirements, and an assessment of the possibilities for a greater share in the Caricom Jewellery Market. Two important results of the Jewellery Industry Study were the formation of the Guyana National Association of Goldsmiths and Jewellers, and the Organisation of a follow-up training programme for Guyanese Jewellers to be executed in 1995 with Technical Assistance from CESO. The CESO volunteer would teach Jewellery design and give advice on new casting techniques for jewellery manufacture.

### **Sustained Mineral Exploration**

Three Prospecting Licences were granted in 1994 to make a total of 19 current Prospecting Licences. Geological exploration continued apace in most of the existing Prospecting Licence properties, with exploration programmes varying in individual properties from the initial phases to the advanced phases of diamond drilling. At the end of the year a drilling programme had been initiated at one Prospecting Licence property, drill mobilisation was in progress at a second property and advanced drilling had been continued at a third Prospecting Licence property. Favourable exploration results were reported at several properties and at several locations gold and base metal mineralisation were reported.

The most advanced exploration programme was the diamond drilling programme at the Marudi Mountain and Mazoa Hill targets of Romanex Marudi Mountain Prospecting Licences property. Drilling was done to extend drill indicated gold resource of 676,000 oz of gold in

situ outlined by the earlier drilling programmes from 1991 to 1994. By the end of 1995 an overall total of 14,193 metres (46,564 feet) were drilled in seventy one holes.

Romanex's exploration data will be used to prepare a Feasibility Study for the Marudi Mountain property for a possible open pit mine.

A fourth revision of the Mahdia Feasibility Study, first prepared and submitted to the GGMC in 1991, was completed in February 1994 and submitted to the GGMC. Golden Star Resources developed mining reserves for alluvial gold in the Proto-Mahdia palaeo valley and the Mahdia valley. The Feasibility Study evaluated exploration undertaken in the contiguous Tiger Creek, Proto-Mahdia and Eagle Mountain Prospecting Licence areas. An Environmental Impact Assessment was presented as a separate document. Both documents were pre-requisites for the application for a Mining Licence.

### **Geological and Geophysical (Reconnaissance) Surveys**

In October 1994 Golden Star Resources Ltd. completed the first phase of a two phased programme of Geological and Geophysical reconnaissance Surveys in the Five Stars, Wenamu, Potaro and Mazaruni areas in north western Guyana. The total area covered was 4, 375 square miles.

A total of 63,000 line miles of airborne magnetic and radiometric surveys were completed by GSR's contractor Geonex Aerodat Inc of Ontario, Canada. The aim of the Surveys was to identify prospective primary gold terrains in the Five Stars and Wenamu areas and prospective primary diamond terrains in the Mazaruni and Potaro areas.

### **Petroleum Exploration Promotion**

Interest and activity in 1994 centred on offshore petroleum potential, in the Pomeroon and Satira-Abary Blocks and in the potential of the coastal Satira-Abary area. There was also active interest in promoting the off-shore Essequibo Block east of the Pomeroon Block.

At the beginning of 1994 there was one current Petroleum concession, the MOBIL off-shore Pomeroon Block, extending roughly from Guyana's border with Venezuela, south eastward to the Essequibo River vicinity. MOBIL completed their last brief drill site seismic surveys early in 1994.

Discussions were initiated in March 1994 with Petrol Petroleum Corporation of the USA for the review and promotion of the Essequibo off-shore block.

In July 1994, Mobil withdrew from the Pomeroon off-shore concession. However, with joint venture partners TOTAL and TEXACO, MOBIL at that time continued their Technical Agreement with the Guyana government, to review the Satira-Abary offshore block. In November 1994 Mobil withdrew from the Technical agreement, but TOTAL and TEXACO still maintained their interest in the area.

Immediately upon MOBIL's relinquishment of the Pomeroon off-shore Block in July 1994, Nomeco Oil and Gas Corporation of the USA expressed its interest in reviewing the

Pomeroon Block. In October 1994 JAM Production of the USA expressed interest in reviewing the coastal Abary on-shore Block.

### **Forging closer links with the Surinamese State Oil Company**

Senior Officials of STAATSOLIE, the State owned Petroleum Company of Suriname, visited Guyana in November 1994 led by Dr Edward Jharap, Geologist and Managing Director. Their discussions included meeting with the Commission to work out a framework for Technical Cooperation in Petroleum Exploration between Guyana and Suriname. STAATSOLIE indicated their willingness to share their experiences in petroleum exploration and development with Guyana, and Guyana would in turn give advice to the Surinamese Mining Ministry or the Organisation and administration of the Mining Sector. A follow-up visit to Suriname was planned for early 1995.

### **Extended Drilling Services to the Mining Community**

With the purchase of a new BBS - JKS 25 diamond drill in 1993, the Commission was able in 1994 to expand its service of drill rental to Miners and Mining Companies. The new drill was contracted out as were the three Banka drills. Contract drilling for Aroaima Bauxite Company continued from February to December 1994.

### **Emergency Repairs to Hinterland Roads**

In 1994, the GGMC spent some G\$20 million on emergency repairs to the Wismar Road, the Bartica - Potaro Road near Mile 72, and at several points along the Issano Branch Road. The repairs were primarily to alleviate the serious road transportation problems faced by Miners, and so facilitate their production efforts.

Omai Gold Mines Ltd. spent G\$20 million to construct bridges at #40 and #42 Mile on the Mabura Road. The bridges were commissioned in December 1994 by Minister of Public Works, Communications and Regional Development, Mr. Harripersaud Nokta.

## **1.5 Mining Property Developments**

### **1.5.1 Omai Gold Mines**

#### **Reserves Increased**

Omai Gold Mines Ltd. (OGML) reported that ongoing exploration during mining at Omai has significantly increased proven and probable mining reserves. The increased reserves are expected to increase the life of the mine by two years. Reserves of gold in situ stood at 2.495 million ounces at December 31, 1994, compared with 2.13 million ounces at the time of completion of the feasibility study. Mining Reserves in the feasibility study were given as 40.6 million tonnes grading 1.63 g/t Au, while reserves at December 31, 1994 were stated as 56.1 million tonnes at a grade of 1.3 g/t Au. OGML reports that it is very Rely that additional

reserves will be found from definition drilling in the eastern Wenot Pit area, and from exploring known geochemical anomalies.

### **Mill expansion planned**

OGML announced plans to increase production by expanding the present mill facilities. Capital expenditures totalling US \$41.37 million are estimated for the expansion of the mill (US \$29.95m) and power plant (US \$11.42m).

### **Plans disclosed for discharge of tailing effluent into Essequibo River**

Environment Services Ltd. initiated the investigation of a diffuser to discharge tailing effluent into the Essequibo River. OGML reported that preliminary engineering completed in December 1994 indicated that both US and Canadian CCME receiving water guidelines could be achieved by diffusing the tailings pond effluent directly into the Essequibo River through a multi-port diffuser.

## **1.5.2 Groete Creek, Hicks And ElDorado Mining Properties**

### **Diamond drilling to determine gold resources**

Both CAMDICO and Hicks Mining Company undertook drilling in their Mining properties in 1994, to investigate and determine the primary gold resource.

Cathedral Gold Corporation of Vancouver, BC, Canada undertook an integrated exploration programme on behalf of Hicks Mining Company and Kaburi Development Company Ltd. over the contiguous El Dorado - Kaburi gold properties.

The properties are underlain by metavolcanic and metasedimentary rocks of the lower Proterozoic Mazaruni Group, intruded by Proterozoic granite plutons and dolerite dykes. Dolerite dykes of Permian-Jurassic age occur in the eastern part of the property. Weathering is deep, with a saprolite thickness of several tens of metres. Gold mineralisation occurs in three subparallel zones, the Hicks, Larken and El Dorado zones, which were the main focus of exploration in 1994. Exploration also included property wide mapping and geochemical surveys to define additional areas of mineralisation. The property has been extensively worked by small scale pork-knockers.

Exploration completed in 1994 by Cathedral Gold Corporation at Kaburi and El Dorado properties consisted of geological mapping on 1:1,000 and 1:5,000 scales; geophysical IP surveys, ground magnetic and geochemical surveys (2533 samples), trenching (5.0 line km) and diamond drilling (9312 metres).

Hicks and El Dorado zones were considered the best exploration targets. Drilling (39 holes at 100m spacing totalling 8901 metres) and trenching (41 trenches) of Hicks zone traced



mineralisation over strike length 1.6km, 60 metres wide, and to a depth of approximately 175 metres. At El Dorado two moderately favourable zones uncovered by trenching and geological mapping were drilled (6 holes totalling 41 1 metres), but due to thick saprolite and sand cover, the drill holes failed to reach bedrock.

The most consistent gold enrichment was seen at Hicks zone, characterised by a subvertical to steeply dipping shear zone with numerous auriferous lenses up to 15 metres wide, associated with quartz veining and flooding, shearing, pyritisation and visible gold. Chalcopyrite is common, reaching 0.5% by volume, and locally, molybdenum, galena, sphalerite are associated with quartz veins.

Gold mineralisation style in the El Dorado zone is similar to that of Hicks zone, and gold is considered to be present in widely scattered quartz veins.

Western Premium Resource Corporation of Vancouver, BC, Canada, carried out an exploration programmed at Comdisco's Greet Creek Mining Property, that included diamond drilling (9 holes totaling 1915m). Earlier exploration by the Guyana Geological Surveys/United Nations in 1967-68, indicated potential for a large low grade copper-gold deposit with drill indicated resource of 11 2 million tons at 0.2% Cu, or 19 million tons at 0.6 %Cu associated with gold values of 0.05 oz/ton. Copper occurs as chalcopyrite. Copper and gold mineralisation occurs in an east-west trending belt of metasediments and metavolcanics lying between granitoid batholiths.

Later exploration of the saprolite gold resource at Groete Creek undertaken in 1988 by SNC/Golden Star Resources, outlined a saprolite resource of 460,000 tons grading 0.05 oz/ton gold, and confined the potential for a large tonnage low grade copper-gold deposit.

Drilling by Western Premium Resource Corporation also succeeded in outlining a very large low-grade gold-copper deposit that appears to be closed to the west but is open along strike to the east, down dip to the north, and down section to the south. It is postulated that with closer spaced drilling significant tonnages of higher grade material within the larger zone, could probably be defined.

Further drilling is planned at El Dorado, Kaburi and Groete Creek properties. Thick white sand and clay cover of the Cretaceous to Tertiary Berbice Formation overlie all three properties.

## **2. GEOLOGICAL SERVICES DIVISION**

In 1994 the Geological Services Division was responsible for carrying out the geological programmes of the Commission, for the administration and monitoring of medium scale Prospecting Permits (representative of the Medium Scale Mining Sector established in October 1992) and large scale Prospecting Licences, and for the Chemical and Petrological Laboratories. All of these responsibilities were discharged in 1994, despite severe staff depletion experienced in the Field Section and the Chemical Laboratory.

Noteworthy achievements in 1994 were the undertaking of the New River Mineral Reconnaissance Project; the processing of more than a thousand Prospecting Permit applications and the training of all of the Chemical Laboratory Staff in Fire Assay Techniques to internationally acceptable levels of competence.

Since it was not possible to finalise initiatives for recruiting three to four Geologist/Senior Geologists under the Cuban Technical Assistance and Indian Technical and Economic Assistance schemes, the Geological Services bore the brunt of its severely depleted technical capability in 1994. In addition, the government of Guyana scholar who was due to graduate and take up an appointment as a Geologist in the latter part of 1994, failed to return.

As a consequence, with the departure of the two United Nations Volunteers (UNVs) and the VSO volunteer at the end of their respective tours during 1993, and the continuing full-time secondment of Senior Geologist (ag) Mr. J. Ghansam to the Diploma in Technology (Geology) programme at the University of Guyana, the active field Geologists were down from five at the beginning of 1993 to two, throughout 1994.

The Division was forced to curtail its field projects to the New River Geological/Geochemical Reconnaissance Project, initiated in May to August by Senior Geologist (ag) Mr. Sherwood Lowe, and continued in October to December by Geologist Mr. Gordon Nestor.

As was stated earlier, in November 1994 the staff was boosted at the sub-professional level by the recruitment of five Geotechnicians including a former Geological Field Assistant, all GGMC scholars who graduated in November 1994 with the Diploma in Technology (Geology) from the University of Guyana. The Division welcomed the Geotechnicians with mixed feelings: although pleased to have an extension of its technical capability, gaining the Geotechnicians at this time however, meant the non-realisation of further training to the Bachelor of Science level in Geology programme at the University of Guyana.

The Commission had awarded scholarships two years earlier with the intention that graduates from the Diploma in Technology (Geology) programme would go on to complete the Bachelor of Science in Geology.

## **2.1 Geological Field Projects**

### **New River Geological/Geochemical Reconnaissance Survey**

The New River Survey was undertaken as the first, reconnaissance phase of a phased programme to assess the mineral resource potential of the New River area, using geochemical prospecting with complementary geological mapping as the principal field methods.

The geology of the project area has been documented by Berrangé (1973). The stratigraphic interpretation was revised in the 1987 Geological Map of Guyana compilation by the Guyana Geology and Mines Commission. As with previous surveys, for ease of access, the project area is centred along the first and second order tributaries of the main rivers New River and Oronoque River.

The approximately 160 square-mile area covered in the first field season (May to August) encompassed all tributaries of New River between Barrington Brown Falls and King Edwards VI Falls. In the second field season (October to December) the project area was extended southwards along New River from King Edwards VI Falls, beyond Oronoque Falls to Maripuri River mouth. From Oronoque Falls which is at the confluence of the Oronoque River, the project area was extended south along Oronoque River, and southeast along an unnamed right bank tributary of New River that joins New River at Oronoque Falls. The area covered in the second field season was some 470 square miles.

Following the revised (1987) stratigraphic sequence, the oldest rocks underlying the area are the Kanuku high grade gneisses that extend to Oronoque Falls. In the southwest, south and east belts of schists and gneisses belonging to the Oronoque Formation of the Kwitaro Group are intruded by Younger Granites of the South Savannah granite complex. Ultramafies and gabbros are recorded at several localities along New River as discordant dykes.

Reportedly, gold mineralisation has recently been discovered in the southernmost part of the New River Triangle: it provided the basis for illegal Brazilian workings which were obviously rich enough to be supported by air from Brazil. The most prospective ground for gold and base metal mineralisation is thought to be the Kwitaro (mainly) metasedimentary belt sequence, represented by the Oronoque Formation in the project area.

It was intended to collect stream sediment samples and pan concentrates. However, Project Geologist, Mr. S. Lowe reported that the creek bed sediments consisted mostly of quartz sand, and eventually only batel concentrates were collected. These were taken at a depth of up to 0.5m in the middle of creek beds from favourable locations such as creek bends and around rock barriers. The sample density was one sample per 4km<sup>2</sup> (one sample per 1.6 mile). During the first field season 105 sites were sampled and an additional 27 duplicate samples were taken. One Hundred and Five (105) batel concentrates were analysed for Zn, Cu, Co, Ni, Cr, Pb, Mn and Ag by aqua regia digestion, and analysis by AAS. Over 60 rock samples were collected.

In the second field season batel concentrates were collected from 305 sample sites. One Hundred and Sixty Four(164) kilometres of lines were cut and approximately Three Hundred and Eighty Eight (388) line kilometres were traversed. Two hundred and ninety-three (293) pan concentrate samples were submitted to the Chemical Laboratory for analyses of Zn, Cu, Co, Ni, Cr, Pb, Mn, Ag and Au values, by aqua regia digestion, methylisobutyl ketone (MIBK) extraction (in the case of gold analyses) and AAS analyses.

## **2.2 Prospecting Licences**

Three (3) Prospecting Licences were issued in 1994, to make a total of sixteen (16) Prospecting Licences in force (bauxite excluded) at December 31, 1994. This was more than the fourteen (14) Prospecting Licences in force in 1993, but substantially less than twenty two (22) in force in 1992. Fifty (50) Prospecting Licence applications were received in 1994, compared with thirty six (36), and three (3) Prospecting Licences were issued, compared with two (2) in 1993 (Table 4).

The backlog of Prospecting Licences applications mainly from 1993 and 1994, were processed in the latter part of 1994, and thirty two (32) applications were approved for issuing by the Minister responsible for Mining by the end of 1994. Only two of those applicants went ahead and had their Prospecting Licences issued.

**Table 5 - Prospecting Licences in force at December 31, 1994.**

	<u>Property</u>	<u>Company</u>	<u>Date of Issue</u>
1.	Eagle Mountain	Golden Star Resources	30-10-87
2.	Proto-Mahdia	Golden Star Resources	13-02-89
3.	Saganang	Golden Star Resources	10-05-90
4.	Marudi Mountain	Romanex (Guyana) Ltd	13-07-90
5.	Mariwa-Sardine Hill Whitewater	Roraima Gold Corporation/ Odinga Lumumba	30-08-91
6.	Upper Sir Walter	Roraima Gold Corporation	07-09-92
7.	Imotai	Roraima Gold Corporation	07-09-92
8.	Ianna	Roraima Gold Corporation	07-09-92
9.	Wariri/Tupuru	Roraima Gold Corporation	07-09-92
10.	Quartzstone	Roraima Gold Corporation	07-09-92
11.	West Fork Aranka	Roraima Gold Corporation	07-09-92
12.	Baramita	Case Development Company	07-09-93
13.	Pott falls	Giddings Industrial Company	15-09-93
14.	Mid-Mazaruni	EXALL	21-01-94
15.	Akaiwong	M.O.Correia	28-10-94
16.	Mazawini	HGB Ventures	28-10-94

Active exploration programmes were carried out at eleven Prospecting Licence areas. Exall was engaged in preparatory engineering designs for its proposed pilot plant that will be used to recover alluvial diamonds and gold.

Golden Star Resources completed exploration at the Eagle Mountain and Proto-Mahdia Prospecting Licence properties in 1991/92 and since 1991 applied for a Mining Licence over the Proto-Mahdia Prospecting Licence area. That application was extant throughout 1994 with several amendments/revisions being made to the original feasibility study and submitted to the GGMC.

Exploration at the Saganang Prospecting Licence area was incorporated in the wider Geological/Geophysical reconnaissance survey undertaken by Golden Star Resources in 1994.

### **2.3 Prospecting Licences - Exploration Results**

Overall, there were active exploration programmes on eleven (11) Prospecting Licence properties and results were generally encouraging.

#### **Quartzstone Prospecting Licence**

The year 1994 represented most of the second year and the beginning of the third year of the Quartzstone, Imotai, Ianna, West Fork and Wariri Prospecting Licences. In 1993 the Prospecting Licences (except for West Fork) were subject to an option with Canarc Resources Corporation whereby Canarc could earn a 50% interest in the Prospecting Licences. In March 1993, Golden Star Resources Limited entered into a joint venture agreement with Roraima Corporation for exploration at West Fork Prospecting Licence property. The ownership of the Prospecting Licences was transferred from Roraima Mining Company to Roraima Gold Corporation in 1994.

North-south striking Cuyuni Formation metasediments and metavolcanics occur in the western part of the Prospecting Licence area, and granites of the Quartzstone-Aremu batholith extend along the eastern part, meeting at a north-south gradational contact that runs north-south in the middle and throughout the length of the property.

There are two main units in the Cuyuni Formation - a metavolcanic unit with minor metasediments, and a metasedimentary unit with minor volcanics. The metasedimentary unit occurs in the central part of the property, between the Quartzstone-Aremu batholithic intrusives to the east and the metavolcanic unit to the west. Dolerite dykes cut the other rocks, with a north-east to eastern strike. Laterite duricrust is extensively developed on the summit of Sodam Mountain.

Follow-up second stage exploration consisted of detailed geological mapping and geochemical soil sampling on 100 x 50m grid, to outline the main anomalies. This in turn was followed by extensive deep augering and trenching to evaluate anomalies and define drill targets. Detailed geological mapping at 100m line intervals revealed breaks in the north-south granite/greenstone contact, which were associated with boulders and blocks of milky quartz veins locally accompanied by tourmaline and chalcopyrite mineralisation. Gold mineralisation with economic potential seems to be structurally controlled along the breaks in the granite-greenstone contact.

There are two recent alluvial deposits - the Quartzstone and Waiamu River alluvials, which were worked by pork-knockers.

Interpretation of the geological mapping, aerial photographs and exploration work carried out in 1994 was aimed at the establishment of the possible models and controls of the gold mineralization at Quartzstone Prospecting Licence.

### **Mariwa-Sardine Hill-Whitewater Creek**

In the west of the property, an east-west trending belt of rocks of the Blue Mountain Formation of the lower Proterozoic Mazaruni Group consists of a southern tract of meta-volcanics and basic plutonic rocks and a northern tract of metapelites. The metavolcanics are of amphibolite grade to the south. The amphibolites strike north-south, compared to the prevalent regional east-west trend: this is attributed to north-south faulting along Mariwa River valley.

The old Sardine Hill gold mine is located in the west of the property just east of Mariwa River in its middle reaches, in metapelites. Quartz with abundant tourmaline is widespread in the Sardine Hill gold deposit.

The belt of Blue Mountain Formation metamorphic rocks lies between mid-Proterozoic granites and granodiorites of the Mariwa pluton in the south, and inferred projections of the Quartzstone-Aremu batholith to the north.

To the north, west, and partially to the south, flatlying tertiary sands and clays of the Berbice Formation cover the older rocks, reaching a thickness of 55 metres (180 feet) at Timmerman Hill. The Berbice Formation is characterised by a basal white clay with an upper, ferruginous zone, brown sand, and overlying white sand between Sardine and Timmerman Hill. Locally, as apparently at Timmerman Hill, the basal white clay is replaced by beds of ferruginous cemented sands and breccias and hard limonitic limestone.

Latosols have developed over the metavolcanics on the southeastern slope of Mariwa Mountain at the western boundary of the property and at the eastern boundary, east of Whitewater Creek.

Historically, the line of gold workings in the Sardine Hill deposit runs north to south, and gold from alluvial deposits to the north is thought to be derived from a northward extension of the Sardine Hill deposit. Old gold workings follow two sub-parallel ravines. It is thought that the ravines may reflect underlying faulting or shearing that has provided structural control for gold mineralisation. A Soil Geochemical Survey by C.N. Barron of the Geological Survey undertaken in 1969 indicated anomalous soil copper values in southern Mariwa Mountain which is underlain mainly by amphibolites. The zones of higher soil copper values strike north-south, parallel to the amphibolites. Airborne EM surveys were carried out by the United Nations in 1964/5 and by Sheritt Gordon Mines Limited in 1966 and several anomalies were

found, seven of which were on Timmerman Hill. In 1970 TURAM and magnetic surveys were carried out by S.N. Saha, UN Geophysicist in the southern Mariwa Mountain where the soil copper anomalies had been found by Barron (1969). A TURAM anomaly showed a set of parallel conductors trending north-south.

In the current exploration, geochemical soil sampling was done at Sardine Hill on a 100 x 100m m grid. Auger samples were also taken. Hand augering was carried out at Sardine and Timmerman Hills to test deeper soil horizons. Eleven hand auger holes, 4 to 5 metres deep, were sunk at Sardine Hill, in part to define the limits of the deposit to the northeast. Four hand auger holes were sunk at Timmerman Hill to depths of 8-10 metres near the plotted positions for United Nations 1964/5 and Sheritt Gordon (1966) airborne EM anomalies, where ravines had cut deeply into the soil cover. The intent was to follow up weak silver anomalies in the sand cover, and to test underlying basement rocks.

The current geochemical investigations partially define the horizontal limits of the Sardine Hill deposit in which disseminated gold mineralisation occurs, in association with copper, silver and zinc values. Anomalous concentrations of gold have been found in latosols east of Whitewater Creek and on the southeastern slope of Mariwa mountain. Limited sampling at Timmerman Hill below the brown sand cover indicated that anomalous concentrations of gold occur below the brown sand. The highest soil gold anomaly coincided with one of the TURAM conductors found by Saha in 1970.

### **Pott Falls Prospecting Licence**

Pott Falls Prospecting Licence is held by GIDCO. Adex Mining Company had an option to acquire 60% interest in the property.

In 1994, Adex undertook an integrated exploration programme, comprising magnetic and VLF/EM surveys; reconnaissance and detailed geological mapping; and soil, rock, stream sediment and deep auger sampling. Follow-up trenching was conducted in Blackheart Zone.

Pott Falls Prospecting Licence area straddles the steep, uncomfortable, northwest-southeast striking contact between the lower Proterozoic Mazaruni Group and the mid-Proterozoic Muruwa and Iwokrama Formations. The Mazaruni Group rocks, host to the old Pott Falls gold mine, occur in the north. They consist of metabasalts intercalated with shattered, pyritic cherts and metagreywackes that typically strike east-west and dip moderately, and are intruded by diorite plugs and narrow, leucocratic, steeply dipping NW- SE trending quartz porphyry dykes.

Muruwa Formation rocks, mainly purple meta-shales, quartzites, sandstones with silty and shaley layers and basal conglomeratic beds, occur in the southern half of the property. They generally strike at 30° and dip sub-horizontally, but dips vary from sub-horizontal to sub-vertical.

Iwokrama Formation, occurring in the east, consists of rhyolites, crystal tuff and quartz porphyry.

Within the Prospecting Licence area, there are two main structural trends. The Saigo trend that includes the Saigo break, strikes at 120-140° while the other major, older structural trend strikes at 30-50°. This latter trend reflects a large, linear, regional aeromagnetic low that encompasses Frenchman's Creek and corresponds to the Pott Falls dyke swarm. It is in line with a regional trend extending from the mouth of the Berbice River to the Takutu graben.

The Saigo break displaces the Pott Falls dyke swarm some 300 metres south of Pott Falls gold mine. Three major shear zones have been reported in the vicinity of the mine, two trending at 120° parallel to Saigo trend, and one trending at 30°.

The 1994 exploration programme by ADEX identified three main target areas:

- (i) the Saigo Zone within Mazaruni Group greenstones, and including Pott Falls gold mine;
- (ii) the main target area, Blackheart Zone, contiguous with the southern part of Saigo Zone and approximately 2km south of the old mine; and
- (iii) Lucky Zone within the Iwokrama Formation some 3.5km southwest of the old mine.

Blackheart Zone seems to occur at the Mazaruni Group/mid-Proterozoic unconformable contact.

Two types of gold mineralisation are discerned - high-grade quartz veins at Saigo and Lucky Zones; and pervasive low-grade mineralisation in lateritic rocks in Blackheart zone, associated in the south with quartz veining, silicification and sericitisation, with potential for the occurrence of a large tonnage deposit. At Lucky Zone, gold bearing quartz veins are emplaced in a sericitised crystal tuff and intrusive quartz monzonite porphyry, of the Iwokrama Formation.

In each of the target areas gold mineralisation appears to be structurally controlled: intersection of major structural trends and the emplacement of quartz porphyries seem to be important. Auriferous quartz veins have been exploited at Pott Falls mine, and in Lucky Zone where Parrot Pit and Parrot Pit west were opened up by pork-knockers in the 1980s. In Pott Falls mine area the best gold values were found in quartz veins parallel to the northwest-southeast trending quartz porphyry dyke coincident with the Saigo trend. The auriferous quartz veins at Lucky zone also bear a northwest-southeast trend.

Blackheart Zone forms a ridge around which the gold bearing tributaries of Frenchman's creek flow. At Frenchman's Creek a sizeable gold placer resource of 0.5 million cubic yards grading 5gm/cubic yd was demonstrated by Banka drilling (32 holes) and pitting (22 pits) undertaken in 1975 by the Guyana Geological Survey.

Significant and laterally persistent soil geochemical anomalies and anomalous samples in Blackheart, Lucky and Saigo Zones; areas of intersecting major structural trends, magnetic anomalies and VLF-EM conductors; strike extensions of gold deposits and workings and untested alluvial flats have been identified as being very prospective for economic gold mineralisation.



## **Baramita Prospecting Licence**

The Baramita Prospecting Licence was issued to Case Development Company Limited in August 1993. In August 1994, Canarc Guyana Resources Limited entered into a Joint Venture agreement with Case Development Company Limited.

Baramita Prospecting Licence incorporates the headwaters of the Baramita and Barama Rivers, which are the property's main drainage. Alluvial deposits cover large areas with flats of 500 metres average width in the Baramita basin, the main drainage, and similar widths in the Barama drainage.

The regional geology as interpreted by RADARSAT imagery, shows a major structural feature, the Marwani Fault oriented NW-SE, with sinistral movement. To the NE, a subsidiary parallel fault structure runs along the margin of a syntectonic granite, at the contact between granite and mafic to intermediate volcanics with intercalated phyllites, mudstones and quartzites. The Baramita PL occurs along this structure. It appears that a large NE trending lineament intersects the Baramita Fault in the eastern half of the property, near Millionaire and Reserve gold occurrences.

Several gold and diamond bearing deposits and numerous quartz veins carrying values of up to 80 ounces Au/tonne were worked since 1916 at six localities, including Millionaire, Reserve, Golden City, Old World, Crocodile and Marcus workings, all of which occur in the Prospecting Licence area. Gold workings extend for several kilometres from Golden City and Reserve East in the east to Sampson Baird's Pit in the northwest.

Previous work done by Golden Star Resources/Giant in 1987, estimated overburden reserves based on auger drilling to 15m depth as 275,000 tonnes at 1.23g/t Au at the Old World Occurrence and 575,000 tonnes at 1.22g/t Au to 30 metres depth at Millionaire occurrence. The major exploration work at Baramita Prospecting Licence area in 1994 was undertaken by Canarc. Exploration work concentrated on building infrastructure, followed by detailed mapping of five large trenches (395 linear metres) which identified shear-hosted mineralization at the Millionaire occurrence.

A Radarsat image covering an area of 100km x 100km surrounding the property was examined and interpreted, 6.2km of line were cut at Millionaire, 20 deep auger holes were completed and a topographic survey was initiated.

## **Imotai Prospecting Licence**

Imotai Prospecting Licence areas encompass the Imotai and Minnabaru goldfields: the former was worked since 1906. It is centred over the Imotai goldfields in the west and south, which are known for extensive alluvial gold workings at Big Hope and Bonanza Creeks.

The area is underlain by folded and foliated metavolcanics of the Barama-Mazaruni Supergroup, comprising gabbro amphibolites, crystal tuffs and talc-chlorite-serite schists

(derived from reworked tuffs) and hornblende gneiss, intruded to the west and southwest by biotite-granite and hornblende-granite, respectively. Across the centre of the property and concentrated in the southwest, persistent sheeted dolerite dykes strike NW and cut the granites and metavolcanics. The main structural trends are NE, north and NW. Laterite development is widespread, with laterite commonly occurring as extensive flat plains on hilltops.

Quartz veins of glassy or sugary type, are clustered in the west, east and extreme southeast of the main Imotai area, mainly with NE, easterly and northerly trends. Quartz veins seem to be genetically and spatially associated with the intrusion of the late biotite granite/granodiorite, and the hornblende-biotite-granite.

Rocks of the Minnabaru River area form an anticline with its axial trace striking northeast, and its core occupied by a foliated hornblende gneiss whose general northeasterly trend is followed by Minnabaru Creek. In the main Imotai area, a wide belt of biotite-chlorite-sericite schists sandwiched between crystal tuffs, is open folded to form an anticline whose axial trace strikes WNW and is approximately followed in part by Big Hope Creek. The core of the open fold is occupied by gabbro amphibolites intercalated with amphibolite schist and occasional gabbro.

During 1994 Roraima Mining Corporation conducted geochemical soil sampling, geological mapping and selected pan sampling over 50km<sup>2</sup> in grid spacings of 800-100 metres by 400-50 metres to assess the primary gold potential of the property. This work included follow-up of four soil gold anomalies occurring in a 40km<sup>2</sup> area, defined by the 1993 exploration activity.

The geochemical assay result of the 1994 survey outlined extensive soil gold anomalies in the Big Hope-Hubu Creek area, the extreme southwest, the east central areas, and less significant anomalies in the Minnabaru Creek area. In Big Hope Creek area at least 31 soil gold anomalies with values ranging from 100-4400ppb Au were outlined, most of which were thought to represent disseminated gold within the country rocks. The largest was more than 1 km long and 275 metres wide in the Hubu Creek area.

In the east to southern areas, fifteen narrow linear gold zones were outlined with gold values ranging from 100-9,000ppb, mainly in crystal tuffs, gabbro amphibolites and near the contact with the hornblende granite. The Big Hope Creek and eastern anomalies form a series of north to north-easterly trending anomalies extending across the axial trace and occupying the core of the main fold.

In the Minnabaru Creek area anomalous gold values varied from 30-70pb, with most samples assaying 30ppb.

Gold mineralisation occurs associated with the granite/greenstone contact, disseminated within the tuffaceous country rocks and associated with leached, cavity bearing quartz veins in areas with intensely folded rocks.

Visible sulphides - pyrite, pyhrotite and chalcopyrite - apparently define four N-S trending sulphide zones in the east and southern parts of the property (where significant gold anomalies also occur). A small abandoned gold mine was discovered in exposed tuffaceous

saprolite intruded by sugary quartz veinlets in the southern extension of a sulphide zone, on a steep hillside on the upper reaches of Big Hope Creek. The host rock continues south for at least 2km.

Roraima Gold Corporation proposed to continue to evaluate the defined geochemical anomalies, including the Minnabaru Creek elevated values, investigate the zones of sulphide mineralisation for base metals occurrences, and upgrade soil geochemical anomalies by deep auger sampling of saprolite, trenching, and defining drill hole targets.

### **Ianna Prospecting Licence**

Metavolcanics underlie the west central part of the PL, consisting of banded or foliated chlorite schists, occasionally garnetiferous or injected with barren quartz veins 2 - 4cm wide. There are also pillow lavas, and medium to coarse grained mafic to felsic metamorphics enclosed towards the centres of late granitic stocks. Resistant lapilli tuff and tuff-breccia are exposed in the west-central part of the PL.

Quartzite outcrops underlying the northern and central parts of the PL area the most common metasediments. They vary considerably in structure and texture from fine to medium grained laminated units to extremely hard, massive to thickly bedded coarse grained type, which shows no weathering effects. Cherts (exhalative units) are sometimes present.

Other metasediments are intercalated with quartzites - grey phyllite, mudstone, slated, knotted staurolite schists and granitized arenites and mudstones. Felsic intrusive granitic rocks are the Teki batholith in the north, the Ianna stock in the southwest, and the Yakushuru stock in the east. All of the granites intrude metavolcanic rocks.

The main exploration target is the sheared and altered granite/greenstone contact.

Initial exploration conducted in 1992-93 outlined several gold geochemical anomalies over areas that were previously mined by pork-knockers and small miners to a depth of 9-15 metres, including the Ianna Stock area in the southwest (Sweetheart, Meadowhalf, StoneHill, Paymaster and Charles Reef); Yakushuru, King's Ransom and Chow Wow. The anomalies were defined in 1994 by deep auger sampling and trenching with confirmatory deep auger (3m) sampling. Deep auger sampling/trenching revealed several zones in excess of 1ppm with relative gold enrichment in the upper level (up to 2.91g Au/ppm av), and located favourable drill hole targets. Trenching exposed several narrow iron stained quartz veinlets at Sweetheart and Meadowhalf with visible gold clay alteration zones, coinciding with the centres of the highest geochemical anomalies.

Mobilisation of a contracted diamond drill began in December 1994, but was severely hindered by low water levels on the Barama River and equipment breakdown. A programme of diamond drilling was planned to test the continuity of the mineralisation and sheared, altered structures with quartz veins, to a depth of approximately 150 metres.

## **West Fork Prospecting Licence**

The Aranka area is situated within intermediate to felsic volcanics in the south and west, intruded by the Iroma-Aranka granite batholith in the north and east. The granite-greenstone contact forms a wide arc extending across the northwest, centre, and east of the PL.

In March 1993 Golden Star Resources Limited entered into a joint venture with Roraima Mining Company for the exploration of the West Fork Prospecting Licence area.

Gold mineralisation is associated with a series of narrow quartz veins varying from fine stringers to up to 15cm in thickness, often with visible gold. Gold mineralisation is associated with limonite and limonitised pyrite cubes and argillic alteration. Gold grade depends on the veining density.

Based on the trenching and deep auger sampling results, two hypotheses for mineralisation have been proposed:

- (i) The mineralisation is controlled by and confined to a 110° shearing corridor, with elliptical ore-bodies elongated along 110°, dipping NW;
- (ii) Mineralization occurs as a series of stacked zones striking 30° to 60°, dipping NW at shallow angles.

GSRL initiated a drilling programme in October 1994 to test gold bearing zones previously defined by trenching and deep auger sampling. From October to December 1994 seven holes were drilled totalling 1196m in length on three fences. In the first two holes, copper content was found to have a good correlation with gold values, and anomalous copper values from 0.1 - 1% copper were obtained. At the end of the year the diamond drilling programme was continuing.

## **Wariri-Tupuru Prospecting Licence**

The Wariri PL is at the southern limit of the Hilly Sand and Clay Belt physiographic region of northern Guyana, and topography is typified by low hills around boggy areas.

Fine grained granite occurs in the western portion of the PL and may be associated with the Quartzstone -Aremu batholith. Diorite rocks have been mapped in contact with the granodiorites, and an ultrabasic body characterized by peridotite is exposed in the Tupuru Creek Channel. Extensive Tertiary cover laterite and White Sands obscure older formations near the headwaters of Tupuru Creek.

No field work was undertaken in 1994. Initial results of an exploration programme undertaken in 1993 revealed low values of gold in soil in the Tupuru area, and in the Wariri area, high grade gold mineralisation lacking continuity and with dimensions that cannot support a mining operation. CANARC relinquished all its interest in Wariri PL in September 1994.

A limited programme was proposed for deep augering through the Berbice Formation to sample the underlying metavolcanic, metasedimentary and granitic rocks; systematic sampling of the laterites for gold and re-sampling and re-mapping the northern granite-greenstone contact, to test the potential of northern portion of the property for an economically viable gold deposit.

## **2.4 Medium Scale Prospecting Permits**

The Commission achieved success in the application for and grant of Prospecting Permits in 1994 as interest in Medium Scale gold and diamond prospecting surpassed that shown in 1993. Altogether, 1,753 Prospecting permit applications were received. Despite delays in processing 1,137 new Prospecting Permits were issued for applications received in 1992, 1993 and 1994, to give a total of 1,232 Prospecting Permits in force at December 31, 1994 (see Table 4).

Delays in processing of applications resulted from:

- (i) The large number of applications, which are processed individually;
- (ii) Area descriptions for most applications were inadequate and had to be re-written by the Cartographic Section prior to certification;
- (iii) The large number of documents to be prepared for publishing notice of "Intention to grant" Prospecting Permits and for the subsequent grant of the said Permits;
- (iv) The long delay and backlog in publication of notices in the Official Gazette.

By the end of 1994, much progress had been made in streamlining application procedures, including the fostering of approved personnel within and outside of the Commission for the standard cartographic description of areas under application for Prospecting Permits, and the acquisition by transfer of a Typist/Clerk 11 in November 1994. Delays in publication of notices in the Official Gazette persisted.

The issuance of Prospecting Permits, each of 150 to 1,200 acres (0.234-1.875 square miles), greatly increased the amount of land held by Guyanese miners for prospecting (see Table 4). The Medium Scale Mining Sector came into effect with the passing of subsidiary legislation in October 1992.

## **2.5 The Chemical Laboratory**

The sub-division of the Chemical Laboratory into five sections was maintained as follows:

1. Sample Preparation Laboratory
2. Fire Assay Laboratory
3. Wet Chemical Laboratory
4. Spectrographic Laboratory
5. Atomic Absorption Laboratory

## Sample Analyses

During the year a total of Five Hundred and Sixty Three (563) rock, soil, heavy mineral concentrates, silica sand, tailings samples, gravel and raw gold samples were analysed. Two Hundred and Fifty Two (252) were analysed on behalf of the Commission. In addition, six (6) samples of 'yellow metal' were analysed for the Guyana Police Force. In 1993, Four Hundred and Forty five (445) samples were received for analyses.

**Table 4(iv) - Summary of Analytical work done in the Chemical Laboratory in 1994**

<u># of Sample</u>	<u>Sample Type</u>	<u>Person or Company requesting analyses</u>	<u>Sample Location</u>	<u>Type of Analyses</u>	<u>Remarks</u>
5	Silica Sand	G. Willoughby Roraima Min Co.	-	Sieve Analysis	Cost \$7,500
70	Soil	Geol. S. Lowe & G. Nestor	Yaeima Divide	MIBK/AAS	-
33	Tailings and Concentrates	Mining Engineer	Konowaruk	Sieve Analysis; Amalgamation and Parting; MIBKIAAS Fire Assaying.	-
33	Raw Gold	Guyana Gold Board	-	Wet Chemical Reprecipitation & Fire Assaying.	-
1	Contaminated Raw Gold	Sheik Hassan	-	Fire Assaying	Cost \$3,000.
10	Silica Sand	Sat Narain White Sands, Guyana Ltd.	Aroaima	Dry sieve analysis	
1	Tailings	D. McDonald Chemical Eng., MPRU	42 Miles, Issano	Dry sieve analysis over range Imm-63Un; Amalgamation and Parting; Fire Assaying & Loss on Ignition.	
1	Rock	D. McDonald Chemical Eng., MPRU	42 Miles, Issano	Spectrographic Analysis.	
7	Rock	D. McDonald Chemical Eng., MPRU	42 Miles, Issano	Fire Assaying	

<u># of Sample</u>	<u>Sample Type</u>	<u>Person or Company requesting analyses</u>	<u>Sample Location</u>	<u>Type of Analyses</u>	<u>Remarks</u>
5	Soil	D. McDonald Chemical Eng., MPRU	42 Miles, Issano	Srg of Powder method.	
1	Gravel	D. McDonald Chemical Eng., MPRU	42 Miles, Issano	Sieve analysis.	
177/ 51	Soil/Heavy Mineral	R. Vieira	Kamaimapu	MIBK/AAS; Spectro- graphic Analysis; AAS. Aqua-regia digestion/ Concentrates	
1	Silica Sand	D. Sears Roraima Min Co	-	Dry Sieve Analysis	Cost \$450.
25	Black Sands	M. Gokul	Cuyuni River	Amalgamation and Parting	Cost \$25,000
8	Black Sands	L. Pires CANARC	-	Amalgamation and Parting	Cost \$4,000
132	Black Sands	Geol. S.Lowe	New River	Aqua-regia digestion/ AAS	
2	Raw Gold	Brian Sucre Commissioner	Eteringbang	Fire Assay	

With the resignation of Technical Assistant 11, Mr. G. James, in November 1994, the Fire Assay Laboratory was greatly affected.

### **Staff Training**

As in 1993, all members of the Chemical Laboratory Staff were exposed to training in Sample Preparation and Fire Assay.

All of the staff successfully completed a training exercise conducted at the Omai Mine Site Laboratory on week-ends over the period January to April, 1994. Training focused on the need to upgrade the sample preparation and Fire Assaying techniques and capabilities of the Laboratory. These week-end exercises were a follow-up to three weeks of intensive training in November 1993 and exposure of the staff to conditions at the Loring Laboratories by Mr. Nicholas Mys, visiting CESO Consultant, with the co-operation of Mr. Kevan Alexander, General Manager, Loring Laboratories.

The objective of this training was to upgrade the Commission's level of competence in Fire Assay to an internationally acceptable level. The 1993 training also resulted in the distribution of updated procedures manuals to each staff member, and the identification of problems and suggested improvements to facilitate work in the laboratory.

### **Equipment/Repairs**

Except for a period of total power outage in June 1994, work in the Chemical Laboratory was affected in small measure by power failures and minor equipment breakdowns. All of the major equipment cannot be used during power failures.

There remained needs for extensive equipment repairs, mainly electrical in nature; repairs to the Manesty Still used to produce distilled water; repairs to several sinks; resurfacing of floors and working counters; and the acquisition of equipment and supplies, viz, for the Fire Assay Laboratory:

- A second Assay Furnace to allow for simultaneous and separate cupellations and fusion processes during Fire Assay Analyses;
- An Analytical Balance of 120g capacity for the appropriate degree of accuracy in weighing samples for assay and flux components;
- A Bullion Roller for rolling out fused precious metal beads to facilitate the parting of silver from gold by dissolution of the former;
- Safety Gloves;
- Completion of the Dust Hood, and the installation of an extractor fan; and for the Atomic Absorption Spectrophotometer;
- Replacement Sodium and Gold Standards; and
- Hollow Cathode Lamps for eight elements, including gold

### **Duplicate Sample Storage**

During the year, several hundreds of reject samples from analysis done by Loring Laboratories for Golden Star Resources Limited, were stored by the Commission. Adequate duplicate sample storage facilities were not available and these were deposited in the compound outside the Laboratory Building, exposed to the weather.

Meanwhile, the condition of the core shed continued to worsen. Serious consideration should be given to its renovation and fencing. Supervision of the core shed should become the responsibility of the Field Section and the Laboratory Head anticipates this transition during 1995.



## National Laboratory Accreditation Committee Participation

The Senior Chemist I continued to attend meetings of the National Committee for the Accreditation of Laboratories in Guyana normally held on a monthly basis in the boardroom of the Guyana National Bureau of Standards.

During the last meeting held in December 1994, the Senior Chemist I submitted to the Committee, for reviewing, a draft Standard of the Criteria for Accreditation of Physical Testing Laboratories.

## Staffing

The staffing situation existing in the Chemical Laboratory during 1994 is given below. There were two resignations, which give a total of six vacancies at December 31, 1994.

<u>Designation</u>	<u>Staff</u>	<u>Remarks</u>	<u>Vacancies</u>
Senior Chemist II	Nil		
Senior Chemist I	S. Smith		
Chemist	Nil		1
Analytical Officer II	C. Sampson	On full-time study leave	-
Analytical Officer I	Nil		2
Technical Assistant II	G. James	Resigned with effect from 1994-11-14	1
Technical Assistant II (ag)	R. Adams		-
Technical Assistant I	T. Hicks	Promoted - 94-01-01	-
Technical Assistant I	R. Singh	Resigned with effect from 1994-07-31	-
Laboratory Assistant	R. Wilson		1
Laboratory Assistant	N. Proffith		-
Laboratory Assistant	B. Currie		-
Laboratory Attendant	Nil		1

The diligent efforts of some members of staff upon whom added responsibilities fell as a result of the several vacancies which existed, must be commended. These persons are Ms. S. Smith, Ms. R. Adams, Mr. T. Hicks and Mr. N. Proffith.

From April 06 to July 11, 1994, Ms. R. Adams, Technical Assistant II (ag) carried out some of the duties of the Senior Chemist I who had proceeded on maternity leave over that period.

During the period August 22 to September 30, 1994, while the Senior Chemist I proceeded on annual leave, Ms. D. Miggins, Chemist, Petroleum Unit, carried out the responsibilities of Head of the Chemical Laboratory.

### **3. MINES DIVISION**

The work programme of the Mines Division was organised into four major activity centres which are:

- 1) Technical Programmes and Research
- 2) Mineral Processing Research.
- 3) Inspectorate - regulation of medium and small scale mines.
- 4) Registry.

The Commission recognised that with the establishment in October 1992 of the Medium Scale Sector of the Mining Industry and with the advent of Omai Gold Mines, the first large scale gold mine in Guyana (which processes gold by cyanidation and gravity systems), environmental monitoring and Technical Assistance to the Mining Industry to promote greater efficiency and better mineral recoveries, are being increasingly highlighted.

The Mines Division's programme for 1994 included these areas of concern through planned inspection tours of bauxite mines, quarries and sand pits, and large and medium scale gold operations; research, including hydrological surveys of major rivers; topographic surveys of sand and loam pits and quarries; in-field technical assistance to miners; inspection tours of all six mining districts that incorporate regulatory tours, revenue collection and claim verification exercises; Mineral Processing Research for improved gold recoveries and the continued promotion of the Mercury Retort for use by local miners to whom design specifications had been communicated; rental of Banka drills and contract diamond drilling services.

The Division anticipated that in 1994 there would be the challenge of monitoring the Environmental Management Agreement for medium scale mining operations, which had been drawn up by the Commission in extensive consultation with the Guyana Gold and Diamond Miners Association.

With the appointment of Mining Engineers Eulene Watson and Derek Babb in December 1993, the complement of Mining Engineers, inclusive of Manager Mines (Ag) was increased from three to five. Additionally, two staff members (GGMC scholars) Mr. Rickford Vieira and Mr. Aubrey Sergeant graduated with the Bachelor of Science Degree in Mining Engineering from the University of Guyana in 1994, and were appointed as Mining Engineers in August and November 1994 respectively.

The Mines Division was thus much better placed to undertake its technical programmes as the Commission began to experience the benefits of the re-introduced Bachelor of Science degree in Mining Engineering at the University of Guyana, proactively supported by the Commission.

### **3. 1. Technical Programmes And Research**

The major activities undertaken were:

- Mines inspections by Senior Mining Engineers and Mining Engineers at Omai Gold Mines, Bauxite Mines, Medium Scale Gold Mines, Stone and Sand operations.
- Quarterly topographic surveys of quarries and sand pits to calculate material extracted, and royalties due.
- Contract Diamond Drilling.
- Emergency repairs to interior roads.

### **3.2 Monitoring And Inspections Of Mines, Quarries**

With a larger complement of Mining Engineers on staff and a shift in policy from having a Mining Engineer permanently posted at Omai Gold Mines, reasonable success was achieved in undertaking Inspection tours of mines, quarries and sand pit operations.

## **GOLD MINES**

### **Omai Gold Mines**

There was a major change in policy with respect to monitoring of Omai Gold Mines operation. Instead of the permanent/rotational attachments of Senior Mining Engineers, it was planned to carry out eight three-day inspections, to monitor the technical operations.

Three inspections each of three to four days duration were carried out, the last being in May. Inspections were done by Senior Mining Engineer Squires and Mining Engineer Watson. The Mining Engineers checked for compliance with proper and safe mining practices. The use, storage and disposal of poisonous and explosive substances were noted. Inspections were also carried out on tailings management, the treatment and disposal of sewage effluent and waste material.

### **Konawaruk Alluvial Dredging Operations by Mazda Limited**

All of the four inspection visits planned, were undertaken. Mining Engineers inspected the mine plan, and examined the operational practices.

**Rescan Consultants, Inc.** of Vancouver, Canada, conducted an environmental assessment of Mazda's operations. Rescan's assessment included an examination of and recommendations for water quality and sediment monitoring; mercury management; reclamation after mining and biological monitoring of fish and benthic invertebrates.

Mazda conducts alluvial mining by using suction dredges in their concession which extends some 20 miles along the Konowaruk River. Exploration has proven an orebody of sand and gravel approximately 12ft thick, overlain by 15ft of sandy clay overburden. The ore body is being exploited in two phases. Phase one commenced in 1992 and was in operation in 1994. It consists of dredging the ore and overburden on both banks of the river, desliming the ore with consequent release of clay in suspension, and recovering most of the coarse gold by wide matted sluice boxes with riffles. The heavy mineral concentrate from the bottom of the sluice boxes is fed manually to a trommel, and the undersize material is in turn fed to a centrifugal "Knudson bowl". The fine under flow from the Knudson bowl is collected and amalgamated. The tailings are discharged to form a shallow band of sand with a small percentage of clay, in the river channel and along its banks.

Gold is recovered from the fine black sands concentrate by amalgamation with mercury. Unamalgamated mercury and black sands are retrieved. Gold from the amalgam is then recovered by burning the amalgam in closed retorts. Burning drives off the mercury as a vapour which is condensed through a water cooled condensing tube, and collected subsequently as liquid mercury.

Mazda's EIA anticipates that Phase 2 of the operations will consist of re-working the deslimed tailings from Phase 1 by a floating jig plant (which was under construction in 1994) that incorporates shaking tables for gold separation and recovery. At the end of Phase 2 there will be reclamation by reforestation of the deforested strips along the river and of tailings deposited within the high and low water marks of the river, and careful stacking of tailings to prevent blockage of the river channel and downstream transport of the tailings during floods.

To support their gold mining operations, Mazda has developed an extensive infrastructure of roads and a ferry crossing on the Essequibo River, at Mango landing below Konowaruk River mouth.

### **Pereira's Honey Camp Mine and George Hicks Mining Property**

Three joint inspection tours were scheduled for these companies' operations: two were completed. At Pereira's Mining Camp, the mill plant was put into operation and tailings were being processed. The company which operates a hard rock open pit mine, seemed to have done little mining during the year. The tailings from the reclaim pond were fed to a ball mill in closed circuit with a primary centrifugal concentrator and a hydrocyclone. The oversized material from the cyclone reported to a secondary centrifugal concentrator. The concentrate from the primary and secondary centrifugal concentrators was batelled, and the batel concentrate was amalgamated, and burnt in a closed retort to recover the gold and mercury. The oversized material from the secondary centrifugal concentrator was fed to a matted sluice box for the recovery of any escaping gold.

In 1993, George Hicks Mining Company entered into a joint venture partnership with Cathedral Gold Corporation of Vancouver, British Columbia, Canada, for the exploration, development and joint ownership of the Hicks Mining Property. The Company reported that mining was only carried out in the first half of 1994. As reported earlier, Cathedral Gold Corporation undertook exploration consisting of mapping, geochemical surveys and diamond

drilling at Hicks Mine and the contiguous El Dorado Mine in 1994. Thirty-nine holes at 100m spacing totalling 8901 meters were drilled in the Hicks gold mineralisation zone.

## **BAUXITE OPERATIONS**

Four inspection tours were scheduled for the year, of these the latter three were carried out. The mines inspected were Linmine's operations at Linden, Aroaima Bauxite Company's mines at Aroaima, and Bermine's mines at Kwakwani. By year end, Linmine's North Dorabisi Mine had been closed and only the East Montgomery Mine was in operation. Aroaima worked both their North and South Mines in 1994. Pit in the South Mine came into full production in the first quarter Aroaima Bauxite Company continued its effort to develop a Berbice Deep Harbour Facility which will yield considerable operating cost savings. Bermine reopened their Mombaka mine at Kwakwani.

## **QUARRIES**

### **Sand Quarries and Operations - Vreed-En-Rust/Roraima Mining Co. Ltd, Dora Operation/Global Sands Ltd.**

Three of the four inspection tours scheduled for each property were carried out. Only Roraima Mining Company was actively mining silica sand. The Dora wharf facility was in the early stage of development by Global Sands Ltd.

In November 1993, Spring Point Management of Kelowna, British Columbia, Canada made an application to mine and export silica sand from Sand Hills, left bank, lower Demerara River. A statutory application form was submitted in May 1994.

### **Hard Rock Quarries - St. Mary's and Baracara Quarries**

Four inspection tours of each quarry were scheduled for the year, one for each calendar quarter. Three inspections were carried out, and inspectors observed operational practices at both locations. Observations were made on the use, storage and disposal of explosives both locations, and recording practices employed. Record keeping at both quarries was found to be deficient.

### **3.3 Topographic Surveys Of Quarries And Sand Pits**

Six survey tours were planned for the year, and all six were completed. Of these, three tours were made to Quarries, and three to Sand Pits.

Two tours were made to stone quarries and one to Roraima Mining Company's single operating sand quarry. These surveys were for the purpose of delimiting the existing quarry faces, so that future surveys would be able to establish the volume of material removed, for the calculation of royalties due.

The three survey tours to sand pits were made for the purpose of updating the records of the volumes of sand excavated.

### **3.4 Drilling Services**

#### **Contracted Drilling Services**

From February 14 to December 20, the Commission drilled for bauxite in Aroaima's North and South Mines under a contract with Aroaima Bauxite Mining Company. A total of five thousand one hundred and eighty six and a half (5,186.5 ft) feet was drilled over 1,384.88 hours giving a penetration rate of 3.75 feet per hour. Of this, 1,063.5 feet were cored. The Long Year 34 and Long Year 38 drills were used for this exercise.

#### **Rental of Banka Drills**

During the year the Commission rented its three Banka Drills to individual miners and mining companies.

### **3.5 Hydrological Surveys**

Three Hydrological Surveys were planned for the year, one in the Potaro River and two in the Konawaruk River. None of the surveys took place, since in the first half of the year the issue relating to the field allowance proposed for the staff of Hydrometeorological Department of the Ministry of Agriculture was unresolved, and in the latter half of the year when the rate of payment was resolved, the Hydrometeorological staff were unavailable.

### **3.6 Emergency Repairs To Hinterland Roads.**

Working closely with the Regional Administration of Cuyuni - Mazaruni Region 7, and the Ministry of Public Works, Communications and Regional Development, the Commission effected emergency repairs to the Bartica - Issano Road, at 72 miles Potaro and between 28 and 51 Miles Issano, and constructed a greenheart bridge about half a mile before the Essequibo crossing at Surubana.

Urgent need for a bridge arose after a displacement of a culvert caused a 42 feet long breach in the road. At the time of inspection in July 1994, water 12 feet deep had accumulated in the breach to within, four feet of the road surface. A two span greenheart bridge was constructed, 48.5 feet long and 17.5 feet wide with bumpers six inches wide and twelve inches high along both edges. Its underside was protectively coated with tar, and the approaches which were also eroded, were timbered for 150 feet and 60 feet respectively. Road repairs and bridge construction were coordinated and supervised by Senior Mining Engineer Mr. Richard Squires and Mining Engineer Mr. Derek Babb. Works were carried out by road contractor Mr. Maurice Balgobin. The estimated cost was G\$13.3 million.

The emergency road repairs done were based on the advice and request of the Chief Works Officer, Ministry of Public Works and Regional Development. The Chief Works Officer considered the two areas identified for emergency road repairs to be impassable and

extremely dangerous. At both areas - the 72 Miles Potaro deviation roadway and the roadway between 28 and 51 Miles Potaro, the original road surface had sunk by 3 and 4 feet respectively, creating trench-like depressions.

### **3.7 Mineral Processing Unit**

The Mineral Processing Unit concentrated on two demonstration-type projects during 1994. They were the setting up of a Fine Gold Recovery Demonstration Plant, and the fabrication of a demonstration Mercury Retort.

#### **Fine Gold Recovery Demonstration Project**

Phases two and three of the project were to be undertaken in 1994. Phase two proposed the finalisation of the plant design, followed by the fabrication and purchase of Mineral processing equipment, which was to be assembled into a mobile Gold Processing Demonstration plant. In phase three, also scheduled for 1994, the plant was to be assembled and demonstration of enhanced recovery of fine gold at selected mining sites, was to be initiated.

Phase one of the project was largely completed in 1993. During this phase CESO Consultant Mr. Veron Sefton gave technical guidance for the design of a mobile land based Demonstration plant for processing gold. Mr. Sefton was due to return in April 1994 to give further technical support to the project. However, the project schedule was affected by the late passage of the Commission's budget in May 1994 and the plan was revised, mainly to reflect a simpler plant design. This simpler plant was to be purchased, assembled and field-tested in 1994 at Pereira Mining Company's Honey Camp hard rock Mining operation. The plant was to be enhanced in 1995, and further field-tested.

A visit was made to Pereira's Honey Camp Mining operations in October, to examine their newly installed gravity recovery system. In December, the major mineral processing equipment was ordered. The objectives of finalising the plant design and establishing and field-testing a simplified plant, were therefore not achieved in 1994.

#### **Demonstration Mercury Retort**

Six demonstration Mercury Retorts based on the design by Intermediate Technology of England, were fabricated from cheap, readily available materials. Tests on these retorts established their suitability for use by local medium and small scale miners. By distillation, Mercury Retorts, enable the recovery of mercury from amalgam in a closed system, eliminating the danger of mercury vapour contamination, so reducing the risk to miners, local residents, and the environment. Recovery and retention of amalgamated mercury also give an additional, economic benefit.

The Mercury Retort was exhibited by the Commission at the National Eco Fair held in June 1994.

### **3.8 Inspectorate**

The Mines Inspectorate, consisting mainly of Mines Officers, provided on-going in-field monitoring and regulation of widely dispersed, primarily small scale mining operations. The Inspectorate also collated revenue and investigated reported mining disputes on the ground, and was involved in the prosecution of offences, disputes and complaints filed under the Mining Act and Regulations.

#### **Reopening Of Closed Areas**

In February 1994, former State Mining Reserves in the Puruni and Aremu areas were opened for location of prospecting and mining properties. Two crews of Mines Officers were dispatched, one to each location, to oversee the orderly reversion of state reserved land to the public domain.

#### **Inspection Of Dredges And Mining Camps**

Extensive Inspections of Dredges and Mining Camps were carried out by the Mines Inspectorate in the Mahdia/Potaro; Puruni/Imbaimadai/Mazaruni; Aranka/Cuyuni; Monkey Mountain/Echilibai/North Rupununi; North West District; and South Rupununi. Revenue collection and registration of mining equipment were undertaken during inspections. Mines Officers monitored compliance with the Mining Act 1989 and Regulations, and checked occupational health and safety, and mining practices.

#### **Mining Stations**

The Bartica Mining Station was in operation throughout the year, and Mahdia Mining Station was periodically manned. The two Mining Stations provided the services of a resident Mines Officer to the Mining community.

#### **Verification Of Claim And River Locations**

Verifications were done in Apparapu - Demerara River; Upper Konawaruk; Mid Mazarani - Kaburi; Ekereku; North West District; Essequibo and Arakaka - Austin Creek.

#### **Mining Disputes And Complaints**

Officers of the Mines Inspectorate visited hinterland locations during the year to carry out investigations into disputes and complaints. Locations visited were Ekereku; Mid-Mazaruni; Apparapu; Groete Creek; Puruni River; and Sherima, lower Essequibo River.



## **Court Matters**

Senior Mines Officer, Linton Butters prosecuted mining matters on behalf of the state. He attended sessions at Bartica, Christianburg and Georgetown Magistrates' courts. A number of cases were postponed because of the non-service of summons. Hearing Officer Magistrate Juliet Holder-Allen presided over disputes and complaints made under the Mining Regulations.

## **Joint Exercise**

In December a joint exercise involving Guyana Geology and Mines Commission's Mines Officers, and officers of the Guyana Police Force and the Customs and Excise Department, was carried out in the Aranka - Cuyuni area.

## **Registry**

The Mines Registry provided administrative support to the Technical and Inspectorate sections of the Mines Division. It bore responsibility for maintaining files and records of Claims, River Locations, Mines, Quarries and Sand Pits, and for the compilation of mineral production and other Mining Industry Statistics. The Registry also assisted in the processing of applications for licences and permissions, compiled statutory lists of claims and river locations in existence and abandoned, and facilitated the filing of claims and complaints under the Mining Regulations, and follow-up representation in the Courts of various district Magistrates and the Hearing Officer.

## **Statutory Publications**

The Registry compiled lists for statutory publications and notices to be published in the official Gazette. The list of claims in existence at December 31, 1993 and the list of claims abandoned at March 31, 1994 were published in the Official Gazette. The Registry again met statutory deadlines for submission of these lists for publication.

## **Licences And Permissions**

Applications for Claim and River Location Licences, Goldsmith's Licences, Business and Residential Permissions, were received and processed.

**Table of Comparative Statistics of Dredge Licences, Small Scale Claim/River  
Location Licences, and Permissions**

	<b>1994</b>	<b>1993</b>	<b>1992</b>
(i) <u>Claims</u>			
Existing Claims	9,600	11,900	10,125
Existing River Locations	2,900		
New Claims/River Locations filed	2,405		
(ii) Applications for New/Renewed Licences			
- New Dredge Licences	286	217	167
- Renewed Dredge Licences	447	332	336
Total	773	549	503
Trading Licences (new and renewed)	204	156	350
Goldsmith's Licence (new and (renewed)	154	346	217
(iii) <u>Business Permission</u> (new and renewed)	326	205	536
(v) <u>Residential Permission</u> (new and renewed)	94	111	239

## **4. PETROLEUM UNIT**

### **4.1 Introduction**

The Petroleum Unit shared the anxieties of other Guyana Natural Resources Agency (GNRA) divisions at the commencement of 1994 as scant factual information on the restructuring of GNRA was offered to the staff. The expectant employees of the Petroleum Unit were eventually provided with a formal directive, which appointed Mr. Brian Sucre as the new Guyana Geology and Mines Commissioner. An official transfer notice was approved by Cabinet decision #CP:(94):1:2:1 dated April 28, 1994. The effective date to transfer was May 1, 1995 and the entire staff transfer was completed by the end of July 1994.

The Unit's staff suffered through the remaining months of 1994 in very intimate quarters, utilizing furniture borrowed from GNRA. The Petroleum Unit was without budget and to an extent without officially appointed positions despite Administration's attempts to align the newly arrived personnel to the appropriate corresponding levels within the GGMC.

The Petroleum Unit, nevertheless, proceeded to function as best it could. Personnel involved themselves in various activities in the absence of an approved work programme and budget. Some of the activities were not necessarily in line with petroleum exploration but the display of additional professional capabilities was commendable.

During 1994, it was obvious the most recent phase of petroleum exploration in Guyana, which commenced in the mid 1980's, had come to a close. By July 1994 the concession holders for the Offshore and Takutu Basin had all relinquished their concession rights. Mobil Exploration Guyana Inc. perpetuated their interest for a while in the Satira area but, finally, terminated their relationship with Guyana in November 1994.

More positively, the final stages of 1994 heralded the resurgence of good relations with Staatsolie, Suriname after earlier cordial relations had soured over misconceptions which resulted from efforts to deal with the border issue.

Finally, as the Unit settled in, attention was directed to the preparation of the 1995 Work Programme and Budget. It is anticipated the new year would be a challenging one, but it is expected that staff moral should be high once they are properly assigned and the Commission's 1995 Budget is approved early in the year. The Unit's efforts would then be directed to matters related to the Unit's mandate.

### **4.2 Activities**

The Petroleum Unit undertook numerous activities for 1994. The summary of each activity is outlined below.

## **Gold Demonstration Pilot Plant**

The design and fabrication of a Gold Demonstration Pilot Plant was a project undertaken by the Mineral Processing Division. The Petroleum Unit was invited to contribute skills to the project. Mr. Lynch, the Petroleum Engineer with computer skills and Mr. Prince, the Petroleum Technologist with mechanical engineering skills, were assigned to assist with the designs and fabrication of the plant. Several months after, the project was still at the stage where designs were being prepared, reviewed and altered.

The project team visited Omai Gold Mines Limited and Perriera Mining Company, Honey Camp to view equipment and circuits which might be employed in designs but by the end of 1994 a design was not yet approved. Breakdown in the project's command and non-cooperation from project members were some of the problems the project encountered.

The Petroleum Engineer and Technologist were completely frustrated by the situation and were directed to limit their involvement once there was no result from their input. The project was under careful review by the authorities at GGMC by the end of 1994.

## **Infrastructure Rehabilitation**

The Petroleum Technologist was requested to participate in the rehabilitation of the Mechanical Workshop and advise on issues arising from its present operations. The workshop was poorly equipped and operating inefficiently. Old vehicles cluttered the compound. Some could be repaired.

The Commission wished to alleviate the situation by removing unserviceable vehicles altogether. The Petroleum Technologist assisted in recommending where improvements could be made and which vehicles could be successfully rehabilitated. He also reviewed tenders for contracted mechanical jobs and was regularly consulted by Administration on diverse mechanical matters.

## **Field Trips**

- (a) The Petroleum Unit responded to a request in November, to investigate reports of gas emanating from the ground in Bath Settlement, by the Sea Defence Board. Reports of shallow level gas in this area were documented before and the sporadic emanations were found to be unassociated with petroleum occurrences. The unit, nevertheless, visited the area and interviewed residents, many of whom only heard of the phenomenon but never experienced it directly.

The locations where it was determined the gas was occurring were all in the sea shore area, in the swamps. Access to those areas were not possible at the time of investigating and no volunteer to guide the team to a specific spot could be encouraged. Instead, the known occurrence at Bath Estate was visited so that those members of the Unit unfamiliar with the phenomenon, had the opportunity to experience it.

- (b) Prior to the visit to Bath Settlement, members of the Petroleum Unit assigned to the Gold Demonstration Plant, visited Omai Gold Mines Limited, and Honey Camp during the month of October 1994.

### **4.3 Contracts/Agreements**

The Petroleum Unit monitored all contracts in force during 1994. Mobil Exploration Guyana Inc. (MEGI) was the only company pursuing exploration options in Guyana during the first half of 1994. It was anticipated that MEGI would withdraw rather than exercise their drilling option after they had procrastinated at every opportunity. The Unit prepared for the inevitable and commenced the compilation of new draft agreement from the existing ones.

#### **(a) Petrel Petroleum Corporation**

A contract between GGMC and Petrel was formulated following a visit to Guyana by the company's President, Mr. John Elliott on March 15 and June 22, 1994. Petrel negotiated exclusive rights for a section of the Offshore Basin for a limited, short time period, in order to promote the prospectivity of the acreage. The Agreement was ready for sub-committee review by the end of 1994. The Office of the Attorney General had already approved of its legal correctness.

#### **(b) Mobil Exploration Guyana Inc.**

MEGI relinquished their concession rights to the Pomeroon Block, Guyana Offshore on July 9, 1994. They maintained their interest in the Satira/Abary area as part of the three party consortium which included Texaco and Total. Negotiations were to commence in a timely manner. In November 1994, Mobil officially informed GGMC they were no longer interested in Guyana and relinquished their preferential rights to the Satira/Abary area. This brought to an end a relationship which commenced in 1991.

#### **(c) Total/Texaco**

Total/Texaco registered as partners interested in the Satira/Abary area, on December 9, 1994, immediately after Mobil's withdrawal in November. A team from both companies indicated that they would visit Guyana in the New Year to pursue concession rights for the available acreage.

#### **(d) Nomeco Oil & Gas Company**

Nomeco Oil and Gas Company located in Jackson Michigan U.S.A., communicated their interest in the nearshore section of the Pomeroon Block in July 1994, shortly after Mobil formerly relinquished the entire area. Mr. Dun, Vice President Exploration and Dr. Hanselmann, International Geologist, visited GGMC during July 19 - 22, 1994, during which time preliminary discussion and information exchanges took place.

A model contract was prepared for Nomeco Oil and Gas Company and despatched at the end of September 1994. By the end of 1994 Nomeco was moving rapidly to the point where negotiations for a petroleum agreement would be necessary.

(e) **J.A.M. Production**

This company visited GGMC the last week in October 1994 and registered an interest in the onshore Coastal Satira Area. Information on contracts and arrangements GGMC could engage in, were discussed. At the request of the company, data pertinent to the coastal area was made available for their review. Representatives from this company were to return to Guyana to arrange for the copying and shipping of the data to the U.S.A. By the end of 1994, no person had fulfilled the assignment.

(f) **Staatsolie Suriname**

Good relations between Staatsolie and the Petroleum Unit were restored in December 1994 when, during an official visit to Guyana, the Managing Director and two other representatives from Staatsolie took the opportunity to discuss with GGMC pertinent pressing issues. These included the Area of Overlap and proposals for technical cooperation.

The issue of the Area of Overlap which caused the relationship to deteriorate was clarified when Staatsolie explained that they were not in a position to negotiate political issues of that kind. GNRA did not fully understand before, that this was Staatsolie's position. Consequently attempts to resolve the issue floundered. The relations soured until this opportunity was presented.

This visit was successful. Plans were outlined for a reciprocal visit by GGMC within the first quarter of 1995 so that areas for cooperation between the two entities could be pursued further.

#### **4.4 Staff**

(a) Ms. Dianne Miggins returned to GGMC after spending one year in the Netherlands in pursuit of training in petroleum related geochemistry.

Ms. Miggins attended the University of Utrecht and the Netherlands Institute for Sea Research where she was exposed to applicable molecular organic geochemical studies and the disciplines of palynology, paleobotany and analytical laboratory procedures. She was appointed as Chemist (1) on her return and had acted as Senior Chemist to the Chemistry Laboratory for six (6) weeks during the Senior Chemist's absence in August.

(b) Mr. Nicholas Chuck-A-Sang, completed his second year at University College London, where he was pursuing an undergraduate degree in geophysics.

#### **4.5 Financial**

The Petroleum Unit was not allowed a budget during 1994, even though a supplementary budget was prepared and submitted to the Commissioner on July 10, 1994. As a consequence any expenditures incurred were facilitated by the under utilized portion of the GGMC 1994 budget.

The Unit had no financial position to report. No capital expenditures were made during 1994. The status of the Petroleum Unit's considerable Foreign Exchange Receipts from contracts previously signed was still undetermined at the end of 1994.

#### **4.6 Other**

- (a) Preparations for the 1995 Work Programme and Budget began in September. A preliminary Work Programme for the Unit was submitted to the Commissioner for review, by October 1, 1994. A draft WP&B was compiled by the end of December 1994.
- (b) There was considerable worry during 1994 about accommodation of staff and data at GGMC. The staff were very cramped in the GGMC and there was no place yet determined, to store the data. With an addition of two staff anticipated for 1995, space continues to be an issue.

## **5. ADMINISTRATIVE DIVISION**

The Administrative Division comprises the Administrative/Personnel and Industrial Relations, Services, Information and Publications Departments and the Registry.

### **5.1 Personnel/Industrial Relations Department**

#### **Staffing**

In 1994, twenty-two (22) new staff members were recruited including two professional, and six sub-professionals, while there were two retirements, one dismissal and eleven resignations.

Fifteen (15) employees were promoted and seven (7) employees were confirmed in their appointments. The professional staff was further augmented by the transfer on May 01, 1994 of seven persons from the Petroleum Unit of the Guyana Natural Resources Agency, and Mr. Brian Sucre, its former director was appointed Commissioner of GGMC.

#### **Training**

Consistent with the Commission's commitment to the development of all levels and categories of staff, training was offered in a wide range of professional and non-professional skill areas.

Focus of training continued to be in the Diploma in Geology, Diploma in Mining and Bachelor's Degree in Mining programmes at the University of Guyana. At the end of December 1994, there were eleven (11) students in the first and second years in the Diploma in Geology; four (4) in the degree in Mining Engineering and one (1) in the second year of the Diploma in Mining Engineering. In spite of the introduction of tuition fees at the University of Guyana in the 1994/95 academic year, hence a steep increase in training costs, GGMC maintained its training programme.

The signal achievement in training in 1994 was the graduation of the first batch of Geology Diploma students sponsored by the Commission. As noted earlier, there was at the same time, the disappointment resulting from the non-realisation of the Bachelor of Science degree programme in Geology at the University of Guyana.

#### **Diploma in Geology, Mining**

The five (5) students who graduated with the Diploma in Geology were appointed as Geological Technicians. One student who was referred in two subjects was employed as a Field Assistant and given permission to attend classes.

Five out of six of the second batch of sponsored students proceeded to the second year of the Diploma in Geology programme. Sponsorship was withdrawn from a sixth student due to consistently poor results.



A third batch of five students was sponsored for the Diploma in Geology programme commencing in the 1994/95 academic year.

One employee was constrained from graduating with the Diploma in Mining Engineering due to the failure of the University of Guyana to offer a course requisite for the completion of the Diploma programme. The course was offered in the 1994/95 academic year and the employee was appointed to act as a Mining Technician pending his graduation.

### **Bachelor's Degree in Mining Engineering, Geology, Management, Chemistry**

Two (2) employees completed the Bachelor of Science Degree in Mining Engineering at the University of Guyana, and were appointed as Mining Engineers. Four (4) students were in their final year in the Bachelor of Science Degree in Mining Engineering, three (3) at the University of Guyana, and one (1), a Guyana Government Scholar, at the Russian People's Friendship University, in Moscow.

The Commission awarded a scholarship to a student in his second year of the Bachelor's Degree in Mining Engineering Programme at UG, based on his outstanding performance in his first year of study.

Two (2) employees sponsored by the Commission completed the Bachelor of Social Sciences Degree in Management at the University of Guyana, but reverted to their substantive posts. One (1) employee commenced the third year of the Bachelor's Degree in Chemistry programme.

Two (2) employees, awarded scholarships by the Public Service Ministry, failed to return from overseas at the end of the Bachelor of Science Degree programmes in Geology, and Mining Engineering pursued in England and Canada, respectively. The Public Service Ministry has been unable to furnish any information on their whereabouts.

### **Other Professional Training**

Thirty-seven (37) employees at all levels from the Deputy Commissioner, Finance, Administrative and Mines Managers, Chemical Laboratory staff, senior, middle and junior-level professional and clerical staff, benefitted from training programmes in 1994. Training covered a wide range of subject areas important to the work of the Commission - computerisation of Accounting Systems; Inventory Procurement and Stores Management; Computer Training; Secretarial Support, Accountancy, Management and Introduction to Geographic Information Systems, Map Curatorship, and on-the-job training (at Loring and Omai Mines Laboratories) in Sample Preparation and Fire Assay.

### **Salaries and Wages**

Salaries and wages were increased by 20% with effect from January 01, 1994. In addition, employees were awarded increments of 10, 5 or 2½% on salaries based on the evaluation of job performance during the period January 01 to December 31, 1993.

## **Welfare**

### **Uniforms/Protective Clothing and Gear**

Annual issues of uniforms were made to male and female members of staff, in January and April, respectively. Protective gear was issued to qualifying officers throughout the year as they became due.

### **Secondary School Bursary Awards**

The ninth Secondary School Bursary Award Ceremony was held during the Commission's Fifteenth Anniversary Celebrations at GNS Sports Complex. Two awards of \$10,000 each were made to Shauna Scotland and Dellon Adams, for creditable performance at the Secondary Schools Entrance Examination. The third available annual Bursary Award was not given, since there was no other qualifying applicant.

The total number of Awardees in the 1994/95 academic year was nine, the same as in 1993/94.

## **5.2 Information And Publication Department**

This Department is responsible for map information and production, printing maps, books and forms for use by the Commission and the mining public, and maintenance of a Geoscience Library which serves the Commission, the mining public and students. It consists of the Geoscience/Information and Publication Sections, Library and the Cartographic, Printery/Bindery Sections.

### **Geoscience Library/information and Publication Section**

The main activities of the Library were general library services, production of the quarterly bulletin Mineral Industry Survey, and production of the weekly radio programme "Minerals in Focus".

Reflecting the sustained high level of activity in the Mining Industry in 1994, both the number of visitors to the Library and revenues collected from the sale of maps, reports and publications rose in 1994, relative to 1993.

**Table 8 - Comparative Statistics relating to the Geoscience Library, 1993, 1994**

	<u>1993</u>	<u>1994</u>	<u>% change over 1993</u>
Number of Visitors	1,225	1,386	+13%
Number of publications borrowed	923	1,049	+14%
Sale of publications and maps	\$558,000	\$615,000	+ 10%

The shortage of space continued to be a hindrance to the proper storage and display of books and reports.

The shortage of space continued to be a hindrance to the proper storage and display of books and reports.

The Assistant Information and Documentation Officer participated in an in-house training course in Map Curatorship from May 31, 1994 and continued to the end of the year. This training is to provide skills for the Map Library which was scheduled to be partially transferred from the Cartographic Section to the main Library in 1994. The training programme was due to be completed in March 1995.

### **Public Awareness Efforts - Weekly Radio Programme**

The public awareness radio programme "Minerals in Focus" commenced in 1993 was broadcast weekly by the Commission throughout the year from January to December, 1994. The programme was sponsored and produced by the Commission, with a view to educating and sensitising the public on issues and information on mining and the Mining Industry in Guyana. The programme was presented by the Legal Officer of the Commission.

Topics featured in 1994 included "Industrial Minerals, and why we need them", "Facts about Gold", "Terms used by prospectors and workers in the Mining Industry", Developments in the Mining Sector and the Programmes and Activities of the GGMC; Mineral production statistics were given.

### **Quarterly Publication**

The July to September 1993 and October to December 1993 issues of the Quarterly bulletin "Minerals in Focus", were produced in 1994. The production of Mineral Industry Survey was hampered by late submission of information and data to the Information and Publication Section.

Mineral Industry Survey provided statistics on mineral production in Guyana in 1993; property status for medium and large scale prospecting and mining properties and featured technical papers and presentations on Minerals, Mining and the Mining Industry. **Mineral Industry Survey** was distributed to Senior Government functionaries, selected Government Ministries including the Ministries of Foreign Affairs and Finance; Mining Companies and Miners; local libraries, public and university; selected High Commissions, Embassies; as an exchange publication to selected Geological Survey institutions overseas and to selected non-governmental organisations, including Guyana Gold and Diamond Miners Association, Consultative Association of Guyana Industry Limited (CAGI), Georgetown Chamber of Commerce, and to the local commercial and developmental banks. As interest grew, the number of quarterly productions increased from 100 to 150 per quarter.

### **Video and pamphlet production on a Mercury Retort**

The Information and Publication Section was involved in the production of a video film showing the production and use of a simple mercury retort. The retort was fabricated locally based on the design of 'Intermediate Technology' of England.

The retort, video and an accompanying illustrated pamphlet, the latter also produced by the Information and Publication Section, were displayed at the National Eco-Fair held on June 04-06, 1994. Two hundred pamphlets were prepared for distribution to the public, including students, to demonstrate by show-and-tell, GGMC's commitment to environmental protection in mining and equally importantly, to the health of miners and hinterland communities.

### **5.3 Printery And Bindery Section**

Overall, the level of activity in the Printery in 1994 was slightly higher than that of 1993, as the Printery and Bindery Section fulfilled all of the Commission's needs for official forms and pages for statutory books.

The Printery and Bindery Section produced all of the statutory books and forms, Business and GGMC Identification Cards required for use by the Commission, and statutory books for sale and use by the mining public. Details of production are given in the table following.

<b>Production</b>	<b>1993</b>	<b>1994</b>	<b>% change over 1993</b>
Forms printed	67,000	109,000	+63%
Pages printed	173,000	142,000	-18%
Maps, etc	<u>4,200</u>	<u>63</u>	
<b>Total prints</b>	<b>244,200</b>	<b>251,063</b>	<b>+3%</b>
Books (bound from prints)	1,865	1,168	
Books Rebound	1,126	552	

A Rotaprint R20 Lithographic single colour Printing Press is used by the Printery for large rotary volume offset printing with good reproduction. The productivity of the Press, which was installed in 1974, is affected by the difficulty in obtaining replacement parts such as detachable rubber blankets locally, or from regional or international suppliers. The press uses special photographic plates produced by the Photolithological Laboratory.

### **List Of Professional Staff (1994)**

<b><u>NAME</u></b>	<b><u>DESIGNATION</u></b>
Brian Sucre	Commissioner
William Woolford	Deputy Commissioner
Karen Livan	Manager - Geological Services Division
Claudette Small	Manager - Administrative Division
Newell Dennison	Manager - Petroleum Unit
Sydney Edwards	Manager (ag) - Mines Division
Abraham Baird	Manager (ag) - Finance Manager
Kampta Persaud	Senior Geologist 11
Richard Squires	Senior Mining Engineer 11
Lenise Fraser	Cartographer
James Mingo	Senior Mining Engineer 11 (ag)
Diane Skeete/McDonald	Mineral Processing Engineer I
Rosemary Benjamin-Noble	Legal Officer

## List Of Professional Staff (1994) cont'd

<u>NAME</u>	<u>DESIGNATION</u>
Ted Sample	Senior Data Management Officer
Sandrene Smith	Senior Chemist I
Sherwood Lowe	Senior Geologist I
Fazal Razack	Senior Internal Auditor
Christopher Lynch	Petroleum Engineer
Mitchell Prince	Petroleum Technologist
Diane Miggins	Chemist
Donna MaRae	Information & Documentation Officer
Gordon Nestor	Geologist
Norma Harris	Administrative Officer
Ivor Smith	Chief Mines Officer
Euliene Watson	Mining Engineer
Derick Babb	Mining Engineer
Aubrey Sargeant	Mining Engineer
Rickford Vieira	Mining Engineer
*Jagdeo Ghansam	Senior Geologist I
*Secondment to the University of Guyana.	

### 5.4 Cartographic Section

For 1994, the programme planned for the Cartographic Section included the production of six (6) Geological Atlas Sheets began in 1993. Three to printing stage and three to proofing stage; digitising and editing (i) a small scale map of Guyana, (ii) the topographic background coverage of the 1: 1,000,000 Mineral Property Status Map and (iii) several 1:50,000 topographic sheets; processing of applications for Prospecting Permits and Licences; preparation of maps for the Commission and the public; training in Map Digitising/Editing, Computer assisted Mapping using AutoCAD Release 11 or 12 software as a continuation of training and working with AutoCAD started in 1993; Basic Computing and Map Curating.

There was strong emphasis on training, both of current staff and staff to be recruited (one Senior Assistant Draughtsman and two Assistant Draughtsmen) in 1994. It was intended that two Assistant Draughtsmen would be recruited from graduates of the GGMC sponsored one-year Certificate Course in Elementary Cartography. This was the second of two Certified Courses run by the GGMC. Training in AutoCAD and Digitising/Editing would depend on the acquisition AutoCAD Release 11 or 12 software, a small tablet digitiser and the availability of a person equipped to train in the use of AutoCAD, while completion of the Geological Atlas Map Sheets would require the acquisition of lithographic and offset printing accessories and materials and the retirement of a Senior Assistant Draughtsman.

Training was intended to upgrade Cartographic skills and to prepare the Cartographic Section for the Commission for computer assisted management of Prospecting/Mining properties that includes the development of computerised data bases and GIS.

The constant stream of applications for Medium Scale Prospecting Permits, and to a lesser extent, Prospecting Licences and Geological and Geophysical Surveys Permissions resulted in most of the time of the Cartographic Staff being taken up in re-describing of properties under application, to acceptable cartographic standards. The Cartographer estimated that an overwhelming 90% of the time was taken up with cartographic descriptions of prospective exploration/mining properties, and this was an undesirable trend.

As was noted earlier, in November 1994 a system was introduced for fostering of suitably qualified persons within and outside of the Commission to write property descriptions to acceptable cartographic standards, in order to relieve the workload of the Cartographic Staff and allow time for other programmed activities.

In 1994, approximately 1,300 applications for Medium Scale Prospecting Permits were processed and certified, in addition to some 100 applications for Prospecting Licences and Geological/Geophysical Survey Permissions, and descriptions of Closed Areas and State Mining Reserves.

Unavoidably, the volume of cartographic descriptive work severely encroached on other aspects of the 1994 work programme. One out of the planned six Geological Atlas Sheets was completed and ready for colour proofing, and after initial work, the digitising/editing of a small scale map of Guyana had to be shelved.

Training in Mapping Applications using AutoCAD was not realised. The upgraded AutoCAD Release 11 or 12 software and trainer were not available. This training was to complement and provide training in digitising. Three persons were trained in basic computing, and three Draughtsmen and Two Senior Assistant Draughtsmen were trained in Map Curating.

The staff shortage experienced early in the year was alleviated by the employment of three (3) Assistant Draughtsmen, two (2) in February and one (1) in April, and one (1) Draughtsman in October. The Assistant Draughtsmen were graduates of the one-year Certificate Course in Elementary Cartography run by GGMC from January 1993 to January 1994.

Senior Assistant Draughtsman J. Grimmond resigned in August 1994.

In addition to the activities mentioned, maps were produced, some hand coloured, on behalf of the Commission and the public. Prospecting and Mining Property Status Maps were updated on a quarterly basis, two thematic maps on a 1:1,000,000 scale were produced for display at GGMC's Booth at GUYEXPO '94, several maps from the extant Geological Atlas were hand coloured maps at 1:50,000 scale showing Medium and Large Scale Property status and applications were continually updated, and several miscellaneous tasks were undertaken.

Maps were reproduced on the Xerox Plan Printer, for GGMC, and for the general public at a cost.

The Plan Printer malfunctioned in the latter part of the year, then stopped working altogether in December. Map prints were alternatively made by photocopying at commercial copy centres.

Frequent power stoppages caused great discomfort in the work environment as the air conditioning units could not work. Implementation of work activities was also affected by the slow pace of acquisition of specialised materials and equipment. The Plan Printer was not transferred to the Library, resulting in the use of time that could be ill afforded for printing maps.

Altogether, several factors converged to make 1994 an unusual year of partly fulfilled and unfulfilled projects. The Cartographic Staff was occupied throughout the year with the re-writing of property descriptions, as the individual processing of some 1400 applications mainly for Processing Permits, but also for Exploration Licences and Geological/Geophysical Surveys Permissions strained the fabric of the Cartographic Section and proved the resilience of its staff.

It is important that the processing of applications for prospecting/mining properties should be further streamlined so that there will be meaningful time for other work, and that a Cartographer should be recruited to effectively plan, guide and supervise the map digitising and Geological Atlas Sheets production; the basis of any GIS planned for Mineral Resources Development. The aim of the latter project is to produce colour map prints in-house using the Rotoplan 20 Offset Rotary Printery Press. The project for Computer assisted map production has as its goal the enhancement of the Commissions ability to produce quickly and accurately, on request, maps showing the status of medium and large scale prospecting, mining and reconnaissance properties, as well as thematic maps integrating various types of spatial information.

## **5.5 Services Department**

### **Carpentry Workshop**

The Carpentry Workshop undertook a wide range of maintenance and construction work, which included repairs to buildings, repairs to furniture, construction of furniture, painting, lacquering and plumbing.

### **Mechanical Workshop and Transportation**

The Commission's fleet of active vehicles was increased by the purchase of a car to make a total of vehicles, including field vehicles.

The Mechanical Workshop undertook general repairs and maintenance of the majority of the Commission's vehicles and some mechanical equipment. The other vehicles - four cars, one 26-seater bus and one Land Cruiser were serviced and repaired by AINLIM.

The Commission's fleet of vehicles was used to fulfill its transportation needs. Field trips were made to Aroaima, Konowaruk, Omai, Mahdia, St. Cuthbert's Mission, Linden and Parika. The bus service was provided for staff residing in the East Coast and West Bank/West Coast Demerara areas.

## **Radio and Electrical Workshop**

The Radio and Electrical Workshop undertook the maintenance of electric and electronic equipment, did electrical installations and was also responsible for maintaining the entire electrical system of the Commission.

### **5.6 Lapidary**

From its existing raw material stocks, the Commission's Lapidary, located at West Ruimveldt, produced for sale cabochons and artifacts mainly of jasper and green quartz, but also of rose quartz and agate. Sales amounted to G\$383,000 in 1994, compared with G\$249,000 in 1993, a 54% increase. Sales, however, continued to fall far short of expenses for the Lapidary Workshop in 1994.

The Commission maintains the Lapidary Workshop to demonstrate and promote opportunities for lapidary manufactures in Guyana. Guyanese semi precious stones can be incorporated into gold, sliver and costume jewellery.

The Lapidary participated in the national GUYEXPO '94 Trade and Investment Exposition on February 17-12, 1994 at the Sophia Exhibition Complex, and earned a Certificate of Participation for the Commission.

Responding to an invitation from the Ministry of Trade and Industry and the Director of GO-INVEST, the Commission sent samples of its lapidary manufactures for display at the mini exhibition held during the Seminar on Trade and Investment Opportunities in Guyana, in Toronto in June 1994, and for permanent display at the Guyana Consulate in Toronto. A booklet giving information about the semi-precious stones resources, their products was also produced and sent with the lapidary exhibits as was requested. The Seminar and Exhibition were organised by the Guyana Consulate in Canada, in collaboration with the Association of Concerned Guyanese.

### **5.7 Budget And Purchasing Section**

In 1994 the Budget and Purchasing Section made the signal achievement of re-establishing a system of bulk purchasing in the Commission. To facilitate the step, a review of stock levels and consumption patterns in the Commission was undertaken. A procedure was established for soliciting price lists from a range of suppliers; short listing and interviewing competitive suppliers; and selecting suppliers based on competitive prices and price reductions offered, quality of goods and delivery time offered, and ability to deliver as adjudged by suppliers' stock level and facilities.

In reintroducing bulk purchasing, the Commission benefitted from reduced prices, greater efficiency, greater reliability of supplies, and significantly shorter purchasing time. As noted on page 46, the Purchasing Section, in addition to servicing the Head Office requirements, also supplied goods to the tune of G\$20 million for field projects and mining stations.



## **5.8 Audit Department**

In 1994 the Audit Department mainly undertook routine audits of the various sections of the Commission, together with reconciliation of expenditures for two field projects, and the compilation of two inventories.

Routine audits were wide in range, covering the Stores, Canteen, Internal Transportation, Printery and Bindery, Library, Cartographic Section, Photographic Laboratory, Carpentry Workshop, Lapidary, Contracts, Investment, Petty Cash, Cheque Payments, Cash Receipts, Royalty Payments and Leave Passage Assistance.

Reconciliation's were done for Eteringbang and Port Kaituma field projects, and inventories were prepared of building materials purchased for repairs, and for Aroaima Drilling Project. An exercise was initiated to verify the Commission's Fixed Assists as stated on its Assets Register.

## 6. FINANCE DIVISION

### 6.1 Income

The Commission's Income for 1994 totalled G\$1.096 billion dollars, or 95.93% of budget, which was a significant achievement. When compared with the budgeted figure of \$1.143 Billion dollars there was an unfavourable variance of \$46,505 million.

In total, the Commission paid \$743.49 million or 67.8% of its 1994 Income to the Central Government, as Royalty from Omai Gold Mines Limited and as payment to the Consolidated Fund in respect of assets taken over from Central Government. Central Government received royalty on the Commission's behalf directly from Omai Gold Mines Limited through the Bank of Guyana in the amount of \$613.5M which represents 55.3% of total income for the year under review.

**Table 5(i) - Income to December 31, 1994**

Income G\$	Actual G\$	% of Total Income	Budgeted G\$	Actual as % of Budgeted	Variance G\$	% increase over 1993
Fees & Fines	18,933,458	1.70	55,979,000	34	-37,045,542	0.100
License	14,012,496	1.30	14,094,000	99	-81,504	+17%
Royalties	867,310,744	79.10	896,691,000	97	-29,380,256	+33%
Leases & Concession Rentals	161,989,906	14.80	138,363,000	117	23,626,906	+125%
Core Drilling	3,298,275	0.30	11,085,000	30	-7,786,725	-
Banka Drilling	1,489,087	0.10	2,900,000	51	-1,410,913	+29%
Lapidary Sales	382,540	0.04	235,000	163	147,540	+54%
Canteen Sales	1,027,748	0.10	934,000		93,748	+17%
Others	1,779,246	0.20	2,304,000	77	-524,754	-
Interest from Call A/C	9,659,862	0.90	0	110,000	9,659,862	-
Accrued Income	16,197,099	1.50	20,000,000	81	-3,802,901	-54%
<b>TOTAL</b>	<b>1,096,080,46</b>	<b>100.400</b>	<b>1,142,585,000</b>	<b>96</b>	<b>-46,504,539</b>	<b>0.380</b>

The Commission's income averaged at \$91.3 million per month over the period January - December, 1994.

## 6.2 Expenses

**Table 5(ii) - Expenses to December 31, 1994**

Expenses	Actual	Budgeted	Variance	% of Total Expenses
Employment Cost	106,743,345	149,374,000	42,630,655	11.5
Materials & supplies	10,469,412	13,191,000	2,721,588	1.1
Ration	6,694,794	7,517,000	822,206	0.7
Office Supp/Utly	348,432	7,807,000	7,458,568	0.0
Transportation	8,552,974	9,602,000	1,049,026	0.9
Fuel & Lub.	5,350,455	9,937,000	4,586,545	0.6
M'tce & Repairs	9,171,586	10,563,000	1,391,414	1.0
DSC/P.R.	12,500	600,000	587,500	0.0
Others	33,906,461	73,827,000	39,920,539	3.7
Research & Development	27,700	2,400,000	2,372,300	0.0
Mineral Processing	851,175	4,601,000	3,749,825	0.1
Lapidary	2,406,878	3,173,000	766,122	0.3
Petroleum Unit	2,176,214	0	-2,176,214	0.2
Payment to Central Govt.	743,499,240	616,872,000	-126,627,240	79.9
<b>TOTAL</b>	<b>930,211,166</b>	<b>909,464,000</b>	<b>-20,747,166</b>	<b>100.0</b>

<b>Total Operational Expenses</b>	186,711,926	292,592,000	+105,880,074	20.1%
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Surplus/(Deficit)

Before Depreciation	\$165,869,295 (actual) =====	\$233,121,000 (budgeted) =====	\$67,251,705 (variance) =====
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The Commission's total operational expenses amounted to \$186.7M after deducting \$743.5M as contribution to Central Government. The latter represented Omai royalties retained by Central Government and further contributions totalling \$130M in respect of assets taken over from Central Government.

When comparing the budget for operational expenses of \$292.6M against spending of \$186.7M, there is a favourable spending variance of \$105.9M which represents un-utilised budgeted expenditures.

### **6.3 Surplus**

A surplus of \$56.2m was budgeted, after depreciation and Central Government Contributions. Actual performance indicated a surplus of \$165.8m before depreciation which amounted to 72% of a budgeted surplus before depreciation of \$233.1 million.

### **6.4 Creditors**

The Commission's accounts showed total Creditors' balance at December 31, 1994 as \$5,041,587 of which refundable deposits amounted to \$265,000.

### **6.5 Debtors**

The Debtors' balances recorded in the Commission Debtors' Ledger as at December 31, 1994 totalled \$13.7m.

The Debtors balances were aged as follows:

<b>3 Mths &amp; Under</b>	<b>3-6 Mths</b>	<b>6-9 Mths</b>	<b>9-12 Mths</b>	<b>Over 12 Mths</b>	<b>Total</b>
\$,5241,688.91	\$,496,917.84	\$644,921.01	\$363,826.26	\$1,970,514.79	\$137,178,68.51

### **6.6 Cash Position**

The Cash Book balance at December 31, 1994 was \$165,344,812.68 which was reconciled to the Main Bank Account at Guyana Bank for Trade and Industry.

During the year all Sub-Imprest Accounts which were inactive were closed and the funds were transferred into the G. N.C. B. Main Account #203002049. This Account was eventually closed and all balances were transferred and reopened into a Weekly Business Investment Account with GNCB, with a balance of five hundred thousand dollars (\$500,000). Twenty-three Fixed Deposit Accounts with GNCB were retired between October to December 1994 and the proceeds were deposited into the 7 Day Call Account at Guyana Bank for Trade and Industry.

### **6.7 Investments**

During 1994 the Commission had on investment a total of \$185,819,000 in Short Term Securities at the Bank of Guyana and National Bank of Industry and Commerce. Defence Bonds to the value of \$100,000 were also held at the end of 1994.

## **6.8 Accrued Interest Earned**

The Commission earned accrued interest on its investment in the sum of \$14.181M as at December 31, 1994.

## **6.9 Acquisition Of Fixed Assets**

Capital items purchased by the Commission during the year under review included the following:-

	<b>G\$M</b>
(a) One Nissan Bluebird Car	5.907
(b) Five Executive Chairs	0.201
(c) Four banka drills (manual)	10.103
(d) One bush cutter	0.077
(e) One electric calculator	0.008
(f) Imperial tool set	0.10
(g) Seven transmitting sets	1.446
(h) Two Xerox Fax Machine	0.230
(i) One Air Condition Unit	0.107
(j) One Printing Plate Developer	0.039
(k) One Numbering Machine	0.017
(l) Ten Fogging machines	1.700
(m) Ten installation of intercoms	0.344
(n) Five boats	0.487
(o) Five long foot 25 hp outboard engines	1.235
(p) Three long foot 75 hp engine	0.995
(q) Two 4-drawer file cabinets	0.307
(r) Three desks	0.055
(s) Twenty-eight chairs	0.178

## **6.10 Assets Register**

The value of the Commission's assets could not be verified at December 31, 1994 with any accuracy because of the inadequacy of the information available. Work is currently in progress to implement an Asset Register.

## **6.11 Stock Verification**

A stock verification exercise was done and the nucleus of a stores inventory system put in place with bin cards available.

## **6.12 Audit Of Accounts**

During the year Final Accounts for 1984-1992 were completed despite the difficulties encountered to substantiate balances, and the external Auditors were able to start their audit of the 1984 Accounts.

## **6.13 Contribution To Central Government**

The following amounts were paid over to the Central Government for the year 1994.

P.A.Y.E.	\$16,558,418
N.I.S.	<u>\$47,165,843</u>
	<u>\$63,724,261</u>

Approval was given by the Commission's Board of Directors to pay \$130M into the Consolidated Fund. This amount represents compensation for the assets of the Geological Surveys and Mines Department. The remittances were made in two installments to December 31, 1994.

## **6.14 Stores Services**

The Stores serviced eight (8) Mining Stations, two (2) Projects, and four (4) expeditions during 1994 and ensured that one hundred and four dispatches worth at least \$20M were securely packed and sent out.

## **6.15 Computerisation**

Work was done on the development of a payroll programme and several test runs were carried out to ascertain the accuracy of the computerised package. At December 31, 1994 computerisation of the Commission's payroll had not been implemented because there needed to be clarification of several aspects of the software package.

## **6.16 Staff**

The following staff vacancies existed at the end of December 31, 1994:

Assistant Accountant	1
Accounts Clerk	3
Stores Clerk III	2
Store Keeper	<u>1</u>
	7

There were twenty-one serving staff members at December 31, 1994. The present accommodation for staff in the Accounts Department is inadequate and consideration should be given to enlarging the working and filing areas. In addition, there is an urgent need to upgrade the sanitary facilities in the department.

**GUYANA GEOLOGY AND MINES COMMISSION  
STATEMENT OF INCOME AND EXPENDITURE  
FOR THE YEAR ENDED 31 DECEMBER 1994**

<u>1993</u> G\$	<u>INCOME</u>	<u>NOTES</u>	<u>1994</u> G\$
631,567,712	ROYALTIES	2	940,345,069
29,839,200	LICENCES	3	135,337,438
29,214,813	FEES, FINES ETC	4	18,686,025
13,161,176	CONCESSIONS	5	410,047
48,313,249	OTHERS	6	<u>48,603,180</u>
752,096,150			1,143,381,759
<b><u>EXPENDITURE:</u></b>			
81,883,458	EMPLOYMENT COSTS	7	118,280,316
50,873,369	ADMINISTRATION	8	68,699,435
5,807,131	TRAVELLING AND		
7,489,653	TRANSPORT	9	11,964,404
146,053,611	DEPRECIATION		<u>11,205,448</u>
			210,149,603
606,042,539	SURPLUS/(DEFICIT):		<u>933,232,156</u>
	APPROPRIATION TO		
556,830,344	CONSOLIDATED FUND	10	830,689,681
<u>49,212,195</u>	RETAINED SURPLUS/(DEFICIT)		<u>102,542,475</u>

**STATEMENT OF ACCUMULATED SURPLUS (DEFICIT)**

220,212,674	BAL. AT BEGINNING OF YEAR		269,424,869
49,212,195	RETAINED SURPLUS/(DEFICIT) FOR THE YEAR:		102,542,475
269,424,869	BAL. AT END OF YEAR		<u>371,967,344</u>



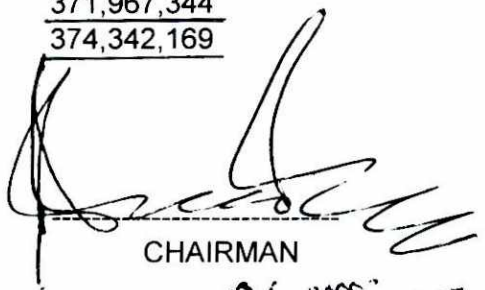
**GUYANA GEOLOGY AND MINES COMMISSION**

**BALANCE SHEET**

**AT 31 DECEMBER 1994**

<u>1993</u> <u>(RESTATED)</u> <u>G\$</u>	<u>NOTES</u>	<u>1994</u> <u>G\$</u>
41,005,189	<u>FIXED ASSETS</u> 11	56,647,542
	<u>CURRENT ASSETS:</u>	
2,192,530	12 INVENTORIES	3,840,925
52,771,962	13 SUNDRY DEBTORS	81,154,105
43,528,079	14 CASH ON HAND AND IN BANK	120,544,559
171,441,281	15 INVESTMENT	188,013,967
8,505	LORING LAB. INVESTMENT	8,505
12,871,059	SUSPENSE ACCOUNT	<u>16,089,058</u>
<u>282,813,416</u>		<u>409,651,119</u>
	<u>CURRENT LIABILITIES:</u>	
	SUNDRY	
1,699,100	16 CREDITORS	4,799,496
42,534,902	DEFERRED INCOME	78,485,747
7,784,909	17 ACCRUED EXPENSES	<u>8,671,249</u>
<u>52,018,911</u>		<u>91,956,492</u>
<u>230,794,505</u>	<u>NET CURRENT ASSETS:</u>	<u>317,694,627</u>
<u>271,799,694</u>		<u>374,342,169</u>
	<u>FINANCED BY:</u>	
	GOVT OF GUYANA	
2,374,825	18 CAPITAL	2,374,825
269,424,869	19 ACCUMULATED S/PLUS	<u>371,967,344</u>
<u>271,799,694</u>		<u>374,342,169</u>

  
 -----  
 COMMISSIONER

  
 -----  
 CHAIRMAN  
 19.6.2000

**GUYANA GEOLOGY AND MINES COMMISSION**

**NOTES ON THE ACCOUNTS**

1. **ACCOUNTING POLICIES**

(a) **ACCOUNTING CONVENTION**

The accounts have been prepared under the historical cost convention as modified for the valuation of certain fixed assets.

(b) **DEPRECIATION**

No depreciation is provided on freehold land.

Depreciation on other fixed assets is charged on the straight line method calculated at the rates specified below which are estimated to write off the assets over the terms of their useful lives as follows:-

Buildings	-	2%
Scientific, field and mining equipment	-	10% - 20%
Motor vehicles	-	25%
Office furniture, fixtures and fittings.	-	5% - 10%

(c) **INVENTORIES**

These are valued at the lower of cost and net realisable value. Cost is arrived at using the first-in-first-out method.

**2 - ROYALTIES - \$940,345,069**

	<u>1994</u>	<u>1993</u>
<b>ROYALTIES:</b>		
BAUXITE	111,326	165,871
GOLD - GGB	253,602,395	175,334,381
OMAI	674,970,681	446,830,344
PRECIOUS STONES	5,328,640	7,470,265
SAND	5,635,175	1,246,856
STONES	693,939	519,995
OTHERS	2,913	0
	<u>940,345,069</u>	<u>631,567,712</u>

**3 - LICENCES - \$135,337,438**

GOLD & PRECIOUS STONES	2,320,900	162,600
PROSPECTING LIC. (SM)	207,029	147,788
PROSPECTING LIC. (MED.)	49,207,063	1,258,369
PROSPECTING LIC. (LG)	62,078,348	17,696,304
CLAIMS GOLD	1,322,840	1,974,070
PRECIOUS STONES	477,735	753,700
RIVER CLAIM LICENCES	2,879,200	2,885,000
QUARRY LICENCE	1,259,604	0
MINING LEASE	271,735	0
TRADING LICENCE	2,340,000	1,792,000
GOLDSMITH LICENCE	192,000	200,300
DREDGE LICENCES	3,047,200	2,664,790
MINING LICENCES	9,095,892	0
MINING PRIVILEGES	637,884	304,279
DUPLICATE LICENCES	8	0
	<u>135,337,438</u>	<u>29,839,200</u>

**4 - FEES FINES ETC - \$18,686,025**

FEES	1,780,632	623,864
TRIBUTES	16,344,193	27,954,384
APP. FOR DREDGES	252,700	100,700
REGISTRATION FEES	36,100	22,600
TRAN. OF DREDGES	38,100	8,960
DUTY ON TRANSFERS	234,300	504,305
	<u>18,686,025</u>	<u>29,214,813</u>

**5 - CONCESSIONS - \$410,047**

MINING PROPERTIES	0	1,359,788
CON. DREDGING	5,000	0
MINING PERMIT	405,047	968,243
EXCL. PERMISSION	0	10,833,145
	<u>410,047</u>	<u>13,161,176</u>

**6 - OTHERS - \$48,603,180**

RENT HOUSING	0	0
MINING EQUIPMENT	2,886,400	1,002,000
REGISTRATION CERTIFICATE	28,800	9,400
INTEREST ON INVESTMENT	36,295,176	32,515,228
SALE OF OFFICIAL PUB. - CARTO	847,020	183,128
SALE OF OFFICIAL PUBLICATION-LIB.	631,159	1,070,994
DRILLING CORE	3,609,465	0
SALE OF LAPIDARY PRODUCT	382,540	253,084
DRILLING	1,556,587	1,025,375
CANTEEN SALES	1,026,668	879,785
VERIFICATION OF CHALLENGE	0	38,500
VERIFICATION OF CLAIMS	1,102,950	553,300
GAIN ON FOREIGN EXCHANGE	9,000	173,751
MISCELLANEOUS	227,415	10,608,704
	<u>48,603,180</u>	<u>48,313,249</u>

**7 - EMPLOYMENT COSTS - \$118,280,311**

SALARIES	74,771,150	52,332,082
WAGES	2,934,309	1,331,202
SALARIES OVERTIME	6,092,894	5,329,715
COMMUTED OVERTIME	104,564	0
WAGES OVERTIME	3,061,687	1,449,242
STATION/BUSH ALLOWANCE	1,017,749	633,215
HOUSE ALLOWANCE	(3,924)	7,070
DUTY ALLOWANCE	47,146	161,340
SUBSISTENCE & TRAVELLING	3,800,379	1,537,362
RISK ALLOWANCE	35,118	38,668
CASH IN LIEU OF LEAVE	3,388,511	1,796,101
TRAVELLING ALLOWANCE	337,057	231,201
ENTERTAINMENT ALLOWANCE	327,809	196,136
PENSION SCHEME(EMPLOYERS CONTRIBUTION)	5,793,000	4,446,789
N.I.S. EMPLOYERS CONTRIBUTION	3,024,420	1,833,543
DIRECTORS EMOLUMENT	651,607	690,160
LEAVE PASSAGE	5,522,383	4,795,399
RESPONSIBILITY ALLOWANCE	331,979	202,966
ACTING ALLOWANCE	974,574	1,016,145
UNIFORM & SAFETY GEARS	1,848,855	1,607,044
TRAINING AND EDUCATION	2,980,548	1,802,887
MEDICAL SCHEME	5,950	1,000
UTILITY ALLOWANCE	546,903	322,286
GRATUITY AND SEVERANCE PAY	685,648	121,905
	<u>118,280,316</u>	<u>81,883,458</u>

**8 - ADMIN EXPENSES - \$68,699,435**

	<u>1994</u>	<u>1993</u>
LOOSE TOOLS & SUNDRY EQUIPMENT	118,150	420,678
LUNCH & SNACKS	1,471,442	1,626,862
FUEL LUBRICANTS - VEHICLES ETC.	4,869,125	4,724,759
MAINTENANCE OF RADIO & COMM. EQUIP	194,000	25,000
MAINTENANCE OF ELECTRICAL EQUIP	396,382	1,262,293
MAINTENANCE OF VEHICLES	5,992,971	2,374,024
MAINTENANCE OF CRAFT, EQUIPMENT	7,476,373	210,625
HIRE OF EQUIPMENT	105,097	5,280
TELEPHONE, TELEX, CABLES	214,572	271,118
ELECTRICITY	2,769,110	1,704,320
RENTAL OF OFFICE EQUIPMENT	0	4,100
MAINTENANCE OF OFFICE EQUIPMENT	541,216	744,079
PRINTING & DUPLICATING	2,295,816	869,472
MATERIALS & SUPPLIES - DRAWING OFFICE	1,440,240	401,575
PROFESSIONAL&CONSULTANCY SERVICES	2,501,681	2,936,443
AUDIT FEES	100,000	100,000
OFFICE STATIONERY	1,805,415	2,475,911
OFFICIAL PUBLICATION & NOTICES	2,115,366	820,931
POSTAGE	75,825	28,384
MAINTENANCE & REPAIRS TO BUILDINGS	1,850,049	2,105,348
MAINTENANCE OF GROUNDS	38,300	135,930
JANITORIAL & CLEANING	458,888	417,654
SECURITY SERVICE	114,135	68,115
LEASES	414,694	520,000
OIL & GREASE	888,446	15,252
BURSARIES	110,000	55,624
NATIONAL EVENTS	9,358	71,260
COMPENSATION TO MINERS	4,000	662,271
DRUGS & MEDICAL SUPPLIES	548,136	510,228
ASSAY LABORATORY SUPPLIES	210,957	0
CHEMICAL LAB. SUPPLIES	420,991	2,670
PETROLOGICAL LABORATORY SUPPLIES	6,126,088	290
LAPIDARY LABORATORY SUPPLIES	1,528	85,312
INSURANCE OF ASSETS	127,647	80,983
BANK CHARGES	75,409	91,187
RATION	7,510,208	4,888,004
MISCELLANEOUS - OTHER EXPENSES	3,062,360	1,696,452
ADVERTISEMENT	712,330	167,080
DONATIONS - GIFTS, WREATHS, ETC.	1,082,692	1,710,825

**8 - ADMIN EXPENSES**

	<u>1994</u>	<u>1993</u>
MISCELLANEOUS	1,299,098	1,094,358
EXHIBITIONS	0	12,885
ENTERTAINMENT EXPENSE	754,388	1,097,996
STORAGE	0	3,337
CUSTOMS & EXCISE	65,230	303,228
FREIGHT & HANDLING CHARGES	0	8,507
LEGAL EXPENSES	500	251,000
STOCK LOSSES & OBSOLENCE	0	59,872
AMMUNITION	0	10,125
TRANSPORTATION & TOLL FEES	699,010	0
WELFARE & SUNDRIES	938,372	747,612
REVENUE STAMPS	143,287	27,621
DEVELOPMENT SUPPORT & COMMUNICATION	0	36,500
MATERIAL & SUPPLIES - COMPUTER	897,323	1,283,408
MAINTENANCE OF COMPUTER	170,700	51,545
PROMOTIONAL SEMINAR	128,743	508,032
RESEARCH & DEVELOPMENT	354,340	6,033,078
LOSS ON FOREIGN EXCHANGE	0	3,470
HIRE CHARGES	20,550	0
SPORT CLUB	0	15,225
STAFF PARTY	518,670	0
ANNIVERSARY CELEBRATION	272,041	192,371
WITHOLDING TAX	3,682,800	4,842,860
PEST CONTROL	130,121	0
WELDING MATERIAL & SUPPLIES	286,587	0
COOKING GAS	88,577	0
INTEREST PAID	101	0
	<u>68,699,435</u>	<u>50,873,369</u>

**9 - TRANSPORT AND TRAVELLING - \$11,964,404**

OVERSEAS CONFERENCE & VISITS	818,849	669,290
ROAD AIR AND OTHER CHARTER	11,145,555	5,137,841
	<u>11,964,404</u>	<u>5,807,131</u>

**10 - APPROPRIATION TO CONSOLIDATED FUND - \$830,689,681**

Included in this amount are Omai Royalties which is paid into the Omai Gold Mines Account No. 964 at the Bank of Guyana. All payments made are then transferred to the Consolidated Fund. The following is a breakdown of appropriations in this regard.

	<u>1994</u>	<u>1993</u>
	\$	\$
Omai Royalties	674,970,681	446,830,344
Consolidated Fund	<u>155,719,000</u>	<u>110,000,000</u>
	<u>830,689,681</u>	<u>556,830,344</u>

**11 - FIXED ASSETS**

	LAND & BLDGS.	MOTOR VEHICLES	OFF. FUR. FIX. AND FITTINGS	SCIENTIFIC FIELD AND MINING E/MENT	TOTAL
	G\$	G\$	G\$	G\$	G\$
<b>COST/VALUATION</b>					
At 1 January, 1994	4,417,599	36,304,793	8,574,879	11,567,329	60,864,600
Additions in 1994	49,990	5,907,968	2,925,075	17,711,781	26,594,814
Disposals	0	0	0	0	0
Cost at 31 December, 1994	<u>4,467,589</u>	<u>42,212,761</u>	<u>11,499,954</u>	<u>29,279,110</u>	<u>87,459,414</u>
<b>DEPRECIATION:</b>					
At 1 January, 1994	617,477	12,367,643	1,609,890	5,264,400	19,859,410
Charged for the year	80,169	8,895,639	979,287	1,250,354	11,205,449
Depreciation on Disposals	0	0	0	0	0
Accumulated Depreciation at 31 December, 1994	<u>697,646</u>	<u>21,263,282</u>	<u>2,589,177</u>	<u>6,514,754</u>	<u>31,064,859</u>
<b>NET BOOK VALUES:</b>					
At 31 December, 1994	3,769,943	20,949,479	8,910,777	22,764,356	56,394,555
	=====	=====	=====	=====	=====
At 31 December, 1993	3,800,122	23,937,150	6,964,989	6,302,929	41,005,190
	=====	=====	=====	=====	=====

**12 - INVENTORIES - \$3,840,925**

	<u>1994</u>	<u>1993</u>
STOCK OF DRILLS	0	0
STOCK OF GOLD	1,018	1,018
STOCK OF DIAMONDS	0	0
STORES CONTROL ACCOUNT	3,839,907	2,191,512
	<u>3,840,925</u>	<u>2,192,530</u>

**13 - SUNDRY DEBTORS - \$81,154,105**

SUNDRY DEBTORS CONTROL	20,110,965	19,470,201
DEPOSITS LODGED	2,880	2,880
ACCOUNTS RECEIVABLE	30,807,875	32,453,894
PREPAYMENTS	21,436	26,472
OTHERS DEBTORS	29,314,879	0
SHORT TERM LOAN	818,515	818,515
STAFF LOAN	77,555	0
	<u>81,154,105</u>	<u>52,771,962</u>

**14 - CASH ON HAND AND BANK - \$120,544,559**BANK BALANCES:SUB IMPRESTS:

A/C 212006199	0	8,068
A/C 212007000	0	29,989
A/C 212007001	0	5,953
A/C 212005758	0	29,165
A/C 203005024	0	29,275
A/C 212006198	0	29,145
A/C 212007044	0	28,862
A/C 212007002	0	10,106
A/C 212007039	0	4,215
SUB TOTAL	<u>0</u>	<u>174,778</u>

OTHER BANK ACCOUNTS:

G.N.C.B. MAIN ACCOUNT	23,657,819	22,745,707
G.B.T.I. 7 DAY CALL ACCOUNT	141,531,118	20,668,348
G.B.T.I. CURRENT ACCOUNT	(44,696,047)	(114,849)
HINTERLAND RD. PROJECT	0	56,752
SUB TOTAL	<u>120,492,890</u>	<u>43,355,958</u>

CASH BALANCES:

PETTY CASH IMPREST	45,010	(1,465)
STAMP IMPREST	(4,189)	(2,224)
STAMP IMPREST (CASHIER)	12,027	3,460
ICE IMPREST	(1,279)	(2,528)
CANTEEN IMPREST	100	100
SUB TOTAL	<u>51,669</u>	<u>(2,657)</u>

TOTAL:.....	<u>120,544,559</u>	<u>43,528,079</u>
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**15 - SHORT TERM INVESTMENT - \$188,013,967**

	<u>1994</u>	<u>1993</u>
	\$	\$
OPENING BALANCE	171,441,281	161,979,154
<b>ADD:</b>		
NEW INVESTMENTS	185,819,000	4,501,798
INTEREST CAPITALISED	16,893,696	0
REINVESTMENT OF FIXED DEPOSIT	<u>0</u>	<u>27,387,406</u>
	374,153,977	193,868,358
<b>LESS:</b>		
RETIREMENT OF FIXED DEPOSIT	<u>186,140,010</u>	<u>22,427,077</u>
	<u>188,013,967</u>	<u>171,441,281</u>

**16 - SUNDRY CREDITORS - \$4,799,496**19941993

SUNDRY CREDITORS CONTROL	2,617,514	(747,221)
PROVISION FOR AUDITING	462,997	1,048,336
REFUNDABLE DEPOSIT	1,718,985	1,397,985
	<u>4,799,496</u>	<u>1,699,100</u>

**17 - ACCRUED EXPENSES - \$8,671,249**

ACCRUED SALARIES	56,223	61,521
ACCRUED WAGES	2,683	1,138
OTHER ACCRUED EXPENSES	(266,791)	2,238,084
PAYE	4,941,669	1,674,437
N.D.S.	(7,987)	(7,987)
SALARIES PAYABLE	1,454,402	741,108
N.I.S PAYABLE	899,934	624,754
WAGES PAYABLE	78,484	27,474
LIFE INSURANCE	33,955	55,624
DEPENDANTS FUND PAYABLE	141,926	19,048
DEPENDANTS FUND MORTGAGE	(701,229)	(413)
PENSION FUND PAYABLE	570,511	575,288
UNION DUES	35,660	34,940
P.S.U. CREDIT UNION	299,317	128,884
RENT DUE AND PAYABLE	1,704	450
MORTGAGE FINANCE PAYABLE	4,965	10,230
LEAVE PASSAGE PAYABLE	384,485	1,003,140
FIELD ALLOWANCE PAYABLE	180	180
RESPONSIBILITY ALLOWANCE	(8,774)	0
GNCB TRUST MORTGAGE	(35,643)	1,534
RISK ALLOWANCE	948	948
SUB. & TRAVELLING	(9,280)	(35,712)
SPORTS CLUB	11,858	1,430
WITHOLDING TAX	467,170	297,491
HOUSE ALLOWANCE PAYABLE	(1,798)	(1,798)
PERSONAL ALLOWANCE PAYABLE	274,196	274,196
D.I.A. PAYABLE	(8,825)	(8,825)
H.I.A. PAYABLE	800	800
ACTING ALLOWANCE	(21,463)	0
INTEREST PAYABLE	15,600	0
ACCRUED LEAVE PASSAGE	(1,141)	0
MISCELLANEOUS	57,510	66,945
	<u>8,671,249</u>	<u>7,784,909</u>

**18 - GOVT. OF GUYANA CAPITAL - \$2,374,825**

This is comprised as follows:-

	<u>1985</u>
Assets less liabilities at 1/8/79	2,139,306
Other expenditure	<u>235,519</u>
	<u>2,374,825</u>

The Commission came into existence on 1/8/79 by an order enacted through the Geology and Mines Commission Act 1979.

According to Section 35(1) and (2) of the Act, for the assets and liabilities vested at 1/8/79 the Commission shall issue to the Government debentures or debenture stock of such nominal value and bearing such interest rates and repayment dates as may be agreed upon between the Minister responsible for finance and the Commission.

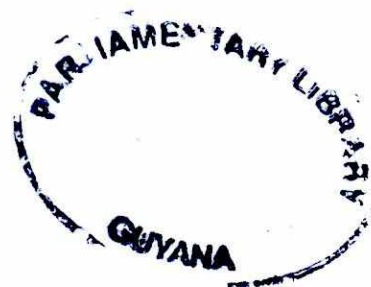
The debenture stock has not been issued to the Government and the repayment terms and interest rates have not yet been agreed.

**19 - ACCUMULATED SURPLUS:**

The Guyana Geology and Mines Commission Act 1979 Section 20 (1) provides that the Commission shall maintain a reserve fund and shall, out of the net surplus of each year, transfer to that fund a sum equal to not less than such sum as may be fixed by the Minister.

**GUYANA GEOLOGY AND MINES COMMISSION**  
**CASHFLOW STATEMENT**  
**FOR THE YEAR ENDED 31 DECEMBER, 1994**

	<u>1994</u> <u>G\$</u>	<u>G\$</u>
NET CASH INFLOW FROM OPERATING ACTIVITIES		243,543,591
<u>RETURN ON INVESTMENT &amp; SERVICING OF FINANCE</u>		
INTEREST RECEIVED ON INVESTMENT CONTRIBUTION	36,295,176	
CONTRIBUTION TO CENTRAL GOVERNMENT	<u>(155,719,000)</u>	
NET CASH INFLOW FROM RETURN ON INVESTMENT & SERVICING OF FINANCE TAXATION		(119,423,824)
WITHHOLDING TAX TAX PAID	(3,682,800)	(3,682,800)
<u>INVESTING ACTIVITIES:</u>		
PAYMENT TO ACQUIRE TANGIBLE FIXED ASSET	(26,594,814)	
SHORT TERM INVESTMENT FINANCING	<u>(16,572,686)</u>	(43,167,500)
		<u><u>77,269,467</u></u>



**20 - RECONCILIATION OF OPERATING PROFIT TO  
NET CASH INFLOW FROM OPERATING ACTIVITIES**

	<b>G\$</b>
OPERATING PROFIT	258,261,475
INTEREST ON INVESTMENT	(36,295,176)
WITHHOLDING TAX	3,682,800
DEPRECIATION	11,205,448
INCREASE IN STOCKS	(1,648,395)
INCREASE IN DEBTORS	(28,382,143)
INCREASE IN CREDITOR	3,100,396
INCREASE IN DEFERRED INCOME	35,950,845
INCREASE IN ACCRUALS	886,340
INCREASE IN SUSPENSE	(3,217,999)
	<u>243,543,591</u>

**21 - ANALYSIS OF CHANGES IN CASH DURING THE YEAR:**

BALANCE AT 94/12/31	120,544,559
BALANCE AT 94/01/01	<u>(43,528,079)</u>
INCREASE IN CASH EQUIVALENT	<u>77,016,480</u>