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1. INTRODUCTION

Generally, 1992 was an eventful and rewarding year for the Guyana Geology and Mines Commission. The local gold and diamond industry continued the trend of improved production, with declared production of 79,582 ozs and 44,763 cts. respectively, topping the new high levels of 59,296 ozs and 24,640 cts obtained in 1991 (see Table 2.1). A major development in the industry was the construction of the Omai Gold Mine Mill and Infrastructure, which were completed in December 1992, two weeks ahead of schedule. The mill was commissioned on December 16, 1992.

Other major developments of note were the passing in October of amendments to the Mining Act 1989 (Mining (Amendment) Regulations No. 12 of 1992) which put into place procedures for establishing Medium Scale Mining under the Mining Act 1989, on terms which include adherence to an Environmental Management Agreement. The Mining (Amendment) Regulations 1992 effectively allow for production records to be used as a permit to convey gold, valuable minerals and precious stones, thereby abolishing the requirement for official sealing parcels of gold, precious stones, and valuable minerals, prior to conveying them from the production site.

Production of bauxite declined at the state Mines Linmine and Bermine, the organisations which succeeded GUYMINE on its dissolution in June 1992, while production increased at the Government of Guyana/Reynolds International Inc joint venture operations at Aroaima as the Aroaima Bauxite Company moved towards its projected full production level of two million tonnes per year of dried bauxite.

The Commission, in keeping with its functions, undertook projects of geological field work; mines inspections; hydrological sampling; under the Mining Act and regulations, investigated and adjudicated complaints, challenges, disputes and legal matters relating to and originating through mining operations and associated activities; processed applications for small, medium and large scale exploration, prospection and mining; monitored the exploration work of companies operating under large scale Prospecting Licences; provided technical assistance for miners; and effected emergency repairs to the Linden-Suribana road, between Anarika and Suribana.

The sharp increase in claim holdings recorded in 1991 was shifted to the nascent Medium Scale Mining Sector where the 202 applications for approximately 204,000 acres, made from October to December, amounted to more than 80% of the total area held under land and river claims in 1991. Small Scale holdings for land and river locations amounted to approximately 286,000 acres at the end of the year, and the 25 Prospecting Licences in force during 1992 covered an area of approximately 300,000 acres. To promote small and medium scale mining by local operators, Government decided to make several restricted areas available for mining, including areas closed for large scale exploration, for which exploration data is now available.

Like the Small Scale Sector of claim holdings and river locations, the Medium Scale Mining Sector is exclusive to Guyanese. With a five-year tenure and large size of area relative to claim holding, the Medium Scale Sector is intended to promote and support increasing levels of production, improvement of mining and mineral processing technologies used by Guyanese miners and environmental protection during and at the close of mining operations.

Golden Star Resources continued to be the most active exploration company, conducting exploration for diamonds, and gold with mixed results. Exploration results at the Aremu and Quartz Hill joint-venture Prospecting Licence properties were favourable. During the year Golden Star Resources indicated that the Peters' Mine gold property did not have sufficient economic potential and consequently the company indicated that they would relinquish this property. Moreover, Golden Star indicated that they wished to scale down detailed exploration for diamonds in favour of reconnaissance surveys over large areas in the Upper Mazaruni and Upper Potaro River basins, to establish new targets for grass roots exploration for diamonds and gold. Golden Star's new position reflects recent exploration success for gold in the Venezuelan borderland with Guyana, and their new focus on primary diamond mineralisation in kimberlite and lamproite dykes.

Romanex continued exploration in the Marudi Mountain Prospecting Licence property, completing a fully integrated programme of mapping, geophysics, geochemistry and diamond drilling in their second year, and progressing to their
third year with a view to augmenting their mineral (gold) inventory and finding additional gold deposits. CAMBIOR completed exploration for gold at Tamakay Prospecting Licence which they relinquished after obtaining discouraging results.

Roraima Mining Company obtained approval to explore and evaluate silica sand deposits at Vreed-en-Rust on the Demerara River, with the intent of producing and exporting construction and processed sands for the OECS and Canadian markets respectively.

The Commission continued to work towards the diversification of the mining industry, the sustained growth and development of the gold and diamond mining industry, and environmental protection during mining. These objectives were pursued by following up extant proposals for mineral resource assessment and mining research submitted to the UNDESD, USGS and the IDB, and for short-term technical advisory services and support through the CDB, for industrial mineral resource assessment and mineral products development.

A quarterly publication 'Mineral Industry Survey' was instituted. The publication is intended to inform Government officials, Miners, Mining Company officials and the wider public of developments in the Mining Industry in Guyana.

Guyana Geology and Mines Commission (GGMC), the Department of International Economic Co-operation (DIEC) and the United Nations Department of Economic and Social Development (UNDESD) conducted the Final Review of the Mineral Promotion Project GY/85/006. The UN agreed to extend this project in order to prepare an updated Mineral Prospectus which would highlight mineral resources other than gold and diamond, while taking

opportunity to advertise the successful development of Omai Gold Mine, and the attractiveness of the Guiana Shield as an exploration target for gold, diamonds and base metals.

Training continued to be a major priority, as the Commission supported and played an important role in the resusication of the geology diploma and degree programmes at the University of Guyana. The Commission awarded scholarships to employees and other qualifying applicants, and was proactive in obtaining Omai Gold Mines Limited's commitment, in keeping with the terms of its Mineral Agreement with the Government of Guyana, to give substantial financial and technical support to the degree and diploma programmes in mining and geology. This support will subsequently be extended to the disciplines of management, accountancy and civil engineering.

The professional geological staff of two senior geologists and one geologist was augmented by two United Nations Volunteers (UNV's) and one Volunteer Service Overseas (VSO) who began their tour of duty in 1991, and by new graduate geologist, Mr. Nestor who started work in November. The three-man complement of Senior Mining Engineers was reduced to three when Senior Engineer Howell took extended leave of absence. The low level of professional and subprofessional staff and a high number of incidences of malaria curtailed the programme of the Mines Division.

The Honourable Samuel Hinds, Prime Minister, assumed direct responsibility for mining after the change in Government which followed National Elections on October 05, 1992.

2. ANNUAL SURVEY OF THE MINING INDUSTRY

2.1 Mine Development and Pre-production at Omai

The 14,000 tons per day gyratory crusher at Omai Gold Mines was commissioned by President Cheddi Jagan on November 03, 1992, paving the way for the commencement of milling operations for the communition and processing of the ore, the recovery of gold and the production of gold dore bars.

Construction of surface facilities and infrastructure which began in September 1991 was completed two weeks ahead of schedule. The cost of construction and development amounted to US $147.7 million as at December 31, 1992, compared to a budget of US $152 million. Pre-production mining activities in 1992 resulted in the extraction of 2.1 million tonnes of ore and 5.4 million tonnes of waste. The mill, which is the final component of the mining complex, received its first mine feed on December 15, 1992. The tonnage milled is to be progressively increased to reach commercial production level by January 1993. Total production of 262,000 ounces of gold is expected in 1993.

Gold mineralisation at Omai occurs in three different styles: in a stocklike body (the Main Stock), in rhyolite bands in interlayered sequences of volcanic flows (the Wenot Lake Zone), and

in alluvials (the Alluvial Deposits). The Main Stock, which is the site of the Fennel Pit, is a quartz diorite pluton (400 x 500m) intruded into meta-andesite country rocks. The pluton is surrounded by a contact rim of hornblende diorite, which together with the quartz diorite is referred to as the intrusive complex. The orebody occupies major sections of the complex, which is infiltrated by shallow-dipping, gold-bearing quartz-carbonate veins and stringers, a few centimetres to 1.5m in thickness. The quartz diorite is the main host for veins and stringers, but preproduction mining activities revealed the presence of major mineralised veins (up to 1m thick), in the meta-andesite and overlying saprolite away from the quartz diorite.

The Wenot Lake Zone consists of interlayered sequences of steeply-dipping rhyolite, andesite and pyroclastic units striking E-W across the property, in a zone 1.8km long and up to 200m wide. Gold mineralisation is closely associated with the rhyolite bands. The entire package of volcanic flows has been extensively weathered to develop both saprolitic and lateritic profiles, with extensive gold mineralisation in the laterites.

The Alluvial Deposits comprise sediments from the erosion of the mineralised units in the area and from past hydraulic mining earlier in the century.

Further diamond drilling of the Main Stock area and Banka drilling of the Alluvial Deposits completed in 1992, upgraded proven and probable mineable ore reserves to 44.3 million tonnes grading 1.60 grammes per tonne, at cut-off grades of 0.7 grammes per tonne for hard rock, and 0.5 grammes/tonne for saprolite and alluvials. This represents more than 2,260,000 ounces of contained gold, an increase of 133,000 ounces over the mineable reserves given in the Feasibility Study.

Additional potential mineral inventory of over 11 million tonnes grading 1.39 grammes/tonne exist in the main stock area: potential for more than 6.3 million tonnes grading 1.21 grammes/tonne occurs within the limits of the Fennel Pit. Wenot Lake Zone shows good geological potential for an additional one million tonnes, and there are good possibilities for extending the alluvial channel, and for finding new mineral deposits in the yet unexplored parts of the Omai Gold Mine property.

Omai Gold Mine is owned jointly by CAMBIOR Inc (65%), Golden Star Resources (GSR) (30%) and the Government of Guyana (5%) and CAMBIOR has the responsibility for financing and managing the mine, which has a budgeted capital cost of US $183 million, including working capital and financial costs.

2.2 **Feasibility Assessment - Mahdia Prospecting Licence Properties**

The Mahdia project consists of three contiguous Prospecting Licences held by Golden Star Resources - Eagle Mountain, Proto Mahdia and Tiger Creek, covering 60 square miles in the Potaro River drainage system. It is located 120 miles southwest of Georgetown, in the vicinity of

Mahdia village, which has been the centre of production of alluvial gold since 1884.

From March 1988 to late 1991, Golden Star Resources explored its three Prospecting Licence properties at Mahdia - investigating the Proto-Mahdia, an alluvial palaeochannel of probable late Tertiary age, occurrences of primary gold mineralisation in shear zones in the Minnehaha area, and gold mineralisation at Dickman's Hill and Tiger Creek associated with granitoid stocks and quartz-feldspar porphyries. The Proto Mahdia was identified in 1935 by British Guiana Geological Survey geologist G. Williams. It was explored by McDame Exploration Limited, a Guyanese subsidiary of Cominco Limited, in 1975-1976. In 1947-48, Anaconda explored the Minnehaha area for primary gold mineralisation, and in 1966, Amax Inc., drilled nine holes at Dickman's Hill, intersecting low grade molybdenum mineralisation. The Geological Surveys, and later the Geology and Mines Commission, undertook diamond drilling at Minnehaha Creek and Millionaire Hill in 1971-72 and in 1980-81, respectively, in follow-up investigations for molybdenite, scheelite, copper and gold associated with quartz feldspar porphyry bodies volcanic rocks, and mineralised shear zones.

Golden Star Resources undertook geological mapping, geophysical EM(VLF) and total field ground magnetometry, banka drilling (over 1700 holes), pitting (70) pits, and bulk sampling. The proposed mine at Mahdia will exploit the gold-bearing Proto-Mahdia palaeochannel. Its reserve has been fully explored and engineering for the proposed mine is completed. The palaeochannel deposit is approximately five miles (8km) long, 1000 feet (300m) wide and 33 feet (10m) thick. Proven and probable reserves of 17,800,000 cubic metres with an average grade of 483 mg/cubic metre have been outlined. Recoverable gold has been estimated at 250,000 ounces. An additional 5.2 million tons of ore grading 1.08 g/ton, equivalent to 180,000 ounces of gold, has been identified at Minnehaha, derived from the weathering of shear zones in the saprolite.

The Proto-Mahdia alluvium is made up of three major sedimentary facies - gravel, clayey sand and clay - which become finer downstream. Gold mineralisation has alluvial and non-alluvial supergene characteristics. The alluvium is thoroughly weathered with local development of a lateritic profile.

A Feasibility Study including an Environmental Impact Assessment was submitted to the Geology and Mines Commission in September 1992. Application for a mining licence has been made, and negotiations for project funding of approximately US $13 million are in progress. The Government of Guyana would initially hold 8.5% interest, with subsequent rights to acquire additional interests, and Golden Star would own 91.5% interest in the mining project.

2.3 **Mineral production in 1992**

Gold and Diamond

The trend of increasing gold and diamond production continued in 1992, with declared gold

production at 79,582 ounces and declared diamond production at 44,763 carats. Even though GGMC's targets of 100,000 ounces of gold and 50,000 carats of diamonds were not realised, declared gold production was 34% above 1991 levels and declared diamond production showed a considerable 104% increase over 1991's figures.

Sustaining increases over the past three years, gold production in 1992 climbed towards the levels of the early 1900's: not since 1908 has gold production topped 70,000 ounces, and production from medium scale miners is expected to further enhance gold production by local miners. Production from Omai Gold Mines, due to begin commercial operations in January 1993, will trigger new high levels of gold production in Guyana, so that the target for total gold production in 1993 and 1994 is set at 385,000 and 445,000 ounces respectively. Thus Guyana is poised to become a significant world producer of gold, a position which could be sustained and enhanced by medium scale production and new large scale exploration finds.

Diamond exports increased by 108% to 37,457 carats, representing 84% of declared production. In 1991, 82% of declared production was exported. Like gold, declared diamond production has increased steadily since 1990, pointing to the success of fiscal measures introduced in 1990. It is estimated that 60% of the diamonds are of gem quality and 40% are industrial stones. Production forecast for diamond for 1993 and 1994 is set at 65,000 and 75,000 carats respectively.

Table 2 (i) - Gold and Diamond production and exports, 1989 - 1992

		1992	**1991**	**1990**	**1989**
1.	Gold (ozs)	79,582	59,296	38,716	17,364
2.	Diamond: (i) Carats	44,736	21,209	18,877	7,842
	(ii) Stones	386,620	176,964	145,655	66,377
3.	Diamond Exports				
	(i) Carats	37,457	18,037	4,911	953
	(ii) Stones	280,336	135,014	46,718	6,141
	(iii) **Approx.**				
	Value US	**$3,050,000**	**1,723,000**	**419,562**	**47,625**

Table 2 (ii) Gold and Diamond Production Forecast, 1993, 1994

	1993	**1994**
Gold (ozs)	385,000	445,000
Diamond (cts)	65,000	75,000

The sustained increases in declared production of gold and diamonds indicate a heightening of mining activity, which is reflected in the larger number of licenced suction dredges, 503 units compared with 396 in 1991, and the larger number of new dredges, 167 compared with 147 in 1991, a 14% increase. New dredges represented investment in the order of G $700 million in the

gold and diamond mining sector.

A shift from small claim holdings towards the acquisition of Medium Scale Permits for prospecting and mining, was demonstrated. After recording a 40% increase in 1991, in 1992 the area under small land and river claim holdings (approximately 286,000 acres) decreased slightly (from 290,000 acres in 1991) and the 10,125 total claims in existence at December 31, 1992, were 1.6% less than the corresponding number in 1991. The 242,400 acres applied for Medium Scale Permits (202 applications) in 1992 are far in excess of the observed shortfall (approximately 4,000 acres) in claim holdings in 1992 relative to 1991.

The preference for land claims continued, a major factor being the generally smaller capital outlay for land dredging/hydraulicking relative to river dredging and the better opportunities available for prospection to define payable material. In this regard banka drilling of alluvials continues to be employed by miners. Throughout the year, the Commission contracted its three banka drills to miners, and is augmenting its fleet of Banka drills by purchasing six new drills. The number of land claims increased by 4% to 7704 in 1992 (7410 in 1991), the percentage of land claims increased slightly from 72% to 76% of all claims. The number of River claims in existence at the end of 1992 decreased by 18% to 2437 compared to 2881 in 1991. A higher proportion of river claims were abandoned than land claims.

There was a 38% decline in the number of small scale prospecting permits (1605 in 1992, 2576 in 1991) and 25% decline in Mining Privileges (5952 in 1992, 7952 in 1991) issued in Georgetown in 1992. The latter figures suggest that the number of small individual pork-knocker type of operation is declining in favour of larger, more organised, operations.

Table 2(iii)
General Statistics relating to Mining Industry performance in 1992

1.	**Dredges**		
	(a) New Licences	-	167
	(b) Renewed Licences	-	336
	(c) Total on Register	-	1225
2.	**Claims**		
	(a) In existence at Dec 31, 1992	-	10125
	(b) Abandoned at Dec 31, 1992	-	1265
	(c) Transfers (application)	-	22
	(d) Transfers approved	-	2
3.	**Application for Licences**		
	(a) Claims	-	1594
	(b) Trading -	-	350
	(c) Residential Permission	-	239

	(d) Business Permission	-	536
4.	**Verifications**		
	(a) Applications	-	1799
	(b) Claims verified	-	552
	(c) Claims to be verified	-	1247
5.	**Disputes**		
	(a) Complaints filed	-	82
	(b) Challenges filed	-	10
	(c) Matters before the Hearing Officer		28
	(d) Matters concluded by the Hearing Officer	-	19

Bauxite

Production of metal grade bauxite at Kwakwani and Linden was adversely affected by the prevailing weak demand for metal grade bauxite.

In 1992 Linmine's operations produced 391,000 tonnes of processed bauxite, (54% of 1991's production of 716,000 tonnes of final-processed product). Fifty-five percent (213 tonnes) was calcined bauxite, 0.8% or 3,000 tonnes abrasive grade, 24% (94,000 tonnes) metallurgical grade and 20% (79,000 tonnes) chemical grade. Total production of crude ore was 1.30 million tonnes, of calcined bauxite ore, from the Kara Kara, North Darabece, Montgomery and North-East Kara Kara mines.

Bermine's Kwakwani operations also experienced falling production levels, producing 516,000 tonnes of processed final product largely from existing stockpiles (of which 75% or 388,000 tonnes was metallurgical grade; 24% or 122,000 tonnes chemical grade; 1.2% or 6,000 tonnes cement grade) amounting to 82% of 1991's production of 630,000 million tonnes of final product. Total crude ore mined by Bermine in 1992 was 253,000 tonnes.

On June 19, 1992, GUYMINE was dissolved and LINMINE and BERMINE were created to operate the Linden and Kwakwani mines, respectively. From June 01, 1992 Minproc Engineers Pty Limited of Australia commenced a management contract for Linmine, with a view to bringing the Linden bauxite mines back to a profitable state prior to the divestment of Linmine.

In 1992 Aroaima Bauxite Company shipped 1,406,402 million tonnes of dried bauxite a 62% increase over 1991's 870,309 tonne production. However, this was 87% of the 1992 production and shipment target of 1.6 million tonnes of dried bauxite.

Aroaima's 1992 production was from the South Mine progressing to the North Mine; Boskalis International NV conducted contract dredging of overburden in the North Mine, while

Green Mining Incorporated were contracted to strip the overburden in the South Mine. Mine infrastructure improvements comprised the construction of a new haul road and improvements to the dock, and major equipment purchases were two haul trucks and an excavator.

Construction of housing for staff was undertaken, and will be completed in 1993. A school was opened for employees' dependents -a building will be constructed in 1993. There was an ongoing programme for dredging the Demerara River shipping channel to maximize loading of ocean-going vessels, for which funds were acquired through a surcharge of US $2.00/tonne.

The Aroaima Bauxite Mining operation is a joint venture between the Government of Guyana and Reynolds International Inc.

Table 2(iv) Bauxite production from 1989-1992 from Linden and Kwakwani operations, 1991-1992 Aroaima operation

Production (tonnes)				
	1992	**1991**	**1990**	**1989**
Linden (LINMINE)				
Calcined Refractory Grade RASC	215,000	331,000	288,000	298,000
Calcined Abrasive Grade AAC	3,000	29,000	28,000	47,000
Dried Metallurgical Grade MGB	94,000	241,000	343,000	233,000
Chemical Grade MAZ	79,000	115,000	108,000	87,000
Total Final Products	391,000	716,000	767,000	665,000
Ore Mined	1,231,000	1,561,000	1,751,000	1,000,000
Kwakwani (BERMINE)				
Dried Metal Grade MAZ	388,000	498,000	545,000	487,000
Chemical Grade CGB	122,000	133,000	112,000	167,000
Cement Grade ACGB	6,000	-	-	2,500
Total Final Products	516,000	631,000	657,000	656,500
Ore Mined	*253,000	*716,000	*432,000	*526,000
Aroaima				
Dried, Shipped Bauxite	1,406,000	870,000	-	-

(*Figures from production information from BERMINE; all others from GUYMINE Marketing Division's records.)

Quarry Products

The newly established medium scale mining sector demonstrated local interest in quarry operations. From October 1992 when applications were first received to the end of December

1992, twelve applications for medium scale prospecting permits for quarry materials were received.

Although declared quarry production was about 30% above the 1991 level, at the present rate of declared production of 72,504 tons in 1992 (totally from St. Mary's and Baracara quarries) the pressing demands for the medium term for quarry products estimated at 500,000 - 600,000 tons per year cannot be met. This demand has been created by the growth in construction activity, and the government's infrastructure rehabilitation project for roads and sea defenses, scheduled to come on stream in 1993.

Government is giving serious consideration to re-opening the Teperu-Itabu quarry complex, and is assessing the viability of obtaining waste rock from Omai Gold Mines' operations to supply demand on the coast for aggregates and boulders.

Silica Sand

There was a growing interest in silica sand in 1992, in response to the existing markets for sands in the Caribbean, and opportunities for obtaining glass sand markets in North America. Guyana silica sand is generally of glass-sand grade, and resources are unlimited, as a belt of high quality surficial silica sands extends behind the coastal plain from the Essequibo to the Corentyne River, widening to the middle reaches of the Berbice River, and extending up to 100 feet deep.

In 1992 Silica Sand was produced for local use in concrete production, as a land fill and for foundation stabilisation. Small tonnages are used in the production of cultured marble sanitaryware products which began in September 1992. Declared production, thought to be a small fraction of actual production, was merely 502 tons in 1992. When the new operations which will be export oriented, come on stream, production of silica sand could rise to in excess of 1.25 million tons per year.

Current sand pit production is conservatively estimated at 400,000 tons per year.

Talc, Clays, Kaolin

Two thousand, nine hundred and eighty-four (2,984) tons of soapstone was taken from the Kauramembu Mountains in the North West of Guyana, by the Geology and Mines Commission, for industrial testing and carving. Guyana National Engineering Corporation extracted 2,439 tons of clay from their Bell-lu pit for clay brick production - an 11% increase over 2,200 tons extracted in 1991.

Approximately one tonne of kaolin was extracted from Topira deposit and shipped to the former Czechoslovakia for industrial tests on behalf of Vanceram. In addition local ceramic and putty manufacturers used approximately 10.7 and 140 tons respectively of Topira kaolin, to give total kaolin production from Topira of 152 tons approximately.

3. GEOLOGICAL SERVICES DIVISION

Three major activities were undertaken by Geological Services. These were geological field investigations, monitoring exploration programmes of companies with prospecting Licences, and processing of applications for large scale Prospecting Licences and Reconnaissance permits, and medium scale Prospecting Permits. There were 25 Prospecting Licence in force covering approximately 300,000 acres - of these 16 were being actively explored, 3 were under application for a Mining Licence. In addition, geologists lectured on a part time basis in the diploma programmes in geology and geography.

The Chemical and Petrological laboratories undertook analyses for in-house geological projects, mining companies and miners. This included a mineral identification service for miners, and examination and certification of samples prior to export for chemical and metallurgical analyses and testwork.

A two-week geological orientation course was held from August 10 to 22, to introduce the geological sciences to fifth formers from high schools across the country and to give them an awareness of career opportunities in geology. From July 20 to 31 and August 10 to 24, the Commission also ran an introductory microcomputer course for fifth formers.

A one-week programme of grading and evaluation of Guyanese diamonds and semi-precious stones, with concurrent preliminary training of professional and subprofessional staff in identification and evaluation of diamonds, was undertaken by Venezuelan government geologist/gemologist, Mr. P. Venegas. Mr.Venegas' attachment on May 25 to 29, was under the auspicies of the Venezuela - Guyana joint Commission, as a Technical Assistance project.

3.1 Geological Field Projects

In 1992 six field projects were executed to investigate mineral resources of topaz and associated alluvial minerals, semi-precious stones, dimension stone, and gold. In addition, the Geological Services Division participated in the survey of resources in the Commonwealth - Government of Guyana Iwokrama Rainforest project area.

3.1.1 The Upper Potaro Mineral Survey conducted by geologist, Mr. Sherwood Lowe, was aimed at determining the presence and distribution of topaz and other economic minerals in alluvial sediments in the Ayanganna area of the upper Potaro river basin, where topaz occurrences were reported from diamondiferous gravels.

Geologically, the area is composed of differentiated sills of dolerite/gabbro of the late Proterozoic Avanavero Suite intruding horizontally bedded sandstones and conglomerates of the Roraima Group, with thermal metamorphism at intrusive contacts. The conglomerates are thought to be the source of diamonds and associated topaz minerals.

Pit sampling of alluvials was complemented by stream sediment sampling, sampling of dredge tailings, and sampling of diamond pit operations. Topaz occurred in small grain sizes of 2-3mm length, in a range of colours from transparent, pale yellow and pale blue, in association with more abundant rutile, zircon and ilmenite. A 250kg sample of dredge tailings from a diamond operation in the Potaro River yielded 730 carats of topaz 2-3mm in length 19 carats 3-5mm, associated with rutile, ilmenite, zircon, and traces of gold.

The overall small grain sizes and low distribution of the topaz found, indicated that the areas upstream particularly the right bank tributaries which are flowing down the Roraima escarpment, should be more favourable for any follow-up investigations for topaz.

3.1.2 **South Savannahs semi-precious Stones project**

This project was undertaken by Senior Geologist I, J. Ghansam, to follow up reports of topaz occurrence at Adelair, to evaluate resources of amethyst, green quartz, rose quartz and quartz crystals in the Aishalton - Kataliriwau area in the Rupununi South Savannah. Its objective was to define short to medium term resources of semi-precious stones to support the expansion and diversification of the jewellery industry, which would provide rural employment through mineral resource extraction and development.

Pitting and channel sampling were employed to test and evaluate occurrences of amethyst, rose quartz and green quartz, and stream sediment sample analyses were done to test for topaz.

Cobbles and boulders of amethyst, rose quartz and green quartz were found to be surficial. Angular boulders of rose quartz/milky quartz obtained maximum dimensions of 6m x 4m x 3m on ridge 3, located two miles North-east of Kataliriwau outstation. Outcrops of coarse porphyritic granite and granite pegmatites were associated with the blocks of massive quartz.

The amethyst reserves were depleted, as the eluvial amethyst deposit has been heavily worked. Green quartz occurred as boulders up to 4m long and 2m wide admixed with milky quartz, on a low ridge approximately five miles WNW of Aishalton.

Venezuelan Geologist/Gemologist Mr. P. Venegas made a preliminary assessment of amethyst and rose quartz samples obtained during the field investigation, and indicated that good quality material can be obtained from the amethyst and rose quartz.

3.1.3 **Yaiema Divide Road Project**

The Yaiema project formed part of a GGMC initiative to expand small and medium scale gold mining into additional areas. Areas selected for geological work were those abandoned in the days of low gold prices, and those considered geologically favourable for gold mineralisation. An essential aspect of the initiative is the establishment of convenient access lines to areas that field investigations have revealed to be prospective. It is hoped these measures will encourage

small/medium scale gold miners into these areas.

Specifically, the Yaiema project focused on the area straddling the Yaiema Divide road. The road, which apparently served as a baseline during a 1971 economic mineral survey undertaken by the United Nations and the Geological Surveys Department, and has since fallen into disuse, had to be relocated and cleared. Its extension began to the Bajan Bay area on the Kuribrong river, and when completed, will establish a 13-mile walking line between the Issano Branch road and the Kuribrong river.

An area just east of the start of the Yaiema road was selected for geological evaluation work. The area was considered favourable because of its closeness to the Okuwa Southern stock (a known mineralizer), the presence of old gold workings, and the presence of meta-sediments, which are considered to be a highly favoured host to gold mineralisation in the area.

A 400 x 100 grid was established in the area. Soil and rock sampling, and geological mapping are to be started in early 1993.

3.1.4 **Imbaimadai Geomorphological Alluvial Diamond Investigation**

This project involved the use of desktop and field geomorphological techniques to undertake reconnaissance surveys for alluvial features with good potential for diamond and gold mineralisation.

A geomorphological map of the upper Mazaruni area was compiled using aerial photographs. Several geomorphological features were identified for field investigation: alluvial flats, river valley floors, low and high terraces, palaeo channels and an alluvial fan in front of the Roraima escarpment. The alluvial features of interest covered an area of more than 26km .

Ground checking was undertaken to follow the field programme started in November 1991. Field activities included geological mapping, pitting and stream sediment sampling along the Mazaruni and Karowrieng drainage, which all have their sources within the Roraima Group.

The results from the field work showed that the main gold placers were formed within reworked based alluvial gravels as well as the present clay river channels. The Karowrieng seems to be the major source of diamonds, and stones of up to 5.6 carats were reported. Diamonds were frequently associated with ilmenite and zircon. Alluvial flats and river valley floors appeared to have the greatest potential for economic gold and diamond deposits.

The Imbaimadai Geomorphological Alluvial Diamond Investigation was successful in developing methodologies for prospection for alluvial deposits in the Roraima Group with potential for gold and diamond mineralisation. The next stage of investigation should include detailed geomorphological mapping, morphogenetic sedimentary analyses, and the development of long term land form evolution models, using Banka drilling as a sampling tool.

Results from this phase would contribute towards the evolution of an exploration model for alluvial placer deposits in the Roraima Group.

3.1.5 **The Commonwealth and Government of Guyana - Iwokrama Rainforest Programme**

In 1989 the Commonwealth accepted an offer by President Desmond Hoyte of Guyana of 3600km of tropical rainforest for developing methods of sustainable tropical rainforest utilization, and for conserving biological diversity. This initiative strengthens and complements the 1989 National Forestry Action Plan (NFAP) whose aim is to support forest inventory, management, conservation and protection on a national basis, and to strengthen regulatory agencies.

A work 'Programme' structured in four levels was designed by a multi-disciplinary team of Commonwealth experts, working alongside the Guyana Inter-Agency Committee (GIAC) to bring the concept through to full implementation. Level 1 of the Programme focused on concept development. Level 2, of which the NRI Phase I Site Resource Survey is a part, is devoted to programme definition. Other components cover environmental impact to develop the research strategy is planned.

Level 3 will be orchestrated by an Interim Board of Trustees with support from the United Nations Development Programme, Global Environment Fund and from the Commonwealth Fund for Technical Co-operation. It will deal with the many management, planning, legal and administrative issues which are the vital pre-requisites of Level 4 when a full programme of research activities will be implemented.

The Site Resource Survey

Recognising the scarcity of resource data for this area, which has been largely inaccessible, the Commonwealth Secretariat and GIAC agreed on a two-phased strategy to provide essential base-line information on the physical nature and dimensions of the Reserve.

Phase I was conceived as a two-month multi-disciplinary reconnaissance survey by resource specialists to describe the general environmental characteristics, and to outline the detailed studies required during Phase II. The Natural Resources Institute (NRI) was commissioned by the Overseas Development Administration (ODA) on behalf of the Commonwealth Secretariat to undertake the Phase I Site Resource Survey. (excerpted from NRI/ODA, Site Resource Survey Commonwealth and Government of Guyana Iwokrama Rainforest Programme).

Geologist Ms. T. Finerty visited the site from April 25 to May 17, as part of the multi-disciplinary team undertaking the Site Resource Survey. She carried out geological mapping along the road dissecting the Rainforest project area between Surama turnoff and Kurupukari, and updated the geological map, using the Global Positioning System to give added accuracy for

orientation and positioning on the ground.

This work was included in the Site Resource Survey Report produced by the Natural Resources Institute, for the Overseas development Administration of the United Kingdom. Results from the Site Resource Survey will be used in identifying the programme of research activities for the Rainforest project area.

3.1.6 **Mabura Hill Dimension Stone Survey**

Project geologist, Ms. T. Finerty, assessed the Mabura Hill area in the vicinity of the Mabura Hill road and the Demerara River for its dimension stone potential. This area is known for exposures of doleritic to dioritic rocks, and the major objective of the field mapping and rock sampling programme were to assess the thickness and continuity of the hard rock formations above the water-table and of workable sections within these formations; to record the overburden thickness and weathering characteristics; to map the distribution and structural elements of the rock units; and to examine the appearance, texture and petrographic variations of the various rock units.

No extensive rock outcrops were found. Rather, rock exposures were blocky due to the widespread development, through weathering, of 'corestones', as large as 6m x 4.6m x 2.5m in the Kumaparu east area, and 13.5m x 4.5m at Winters' mine. Drilling is needed to establish the presence of fresh rock with good lateral and depth continuity, but the large boulders and blocks may themselves constitute a dimension stone resource, and this possibility should not be overlooked.

Two areas were recognised as having some potential for the development of moderate bodies of fresh rock. A study of the petrographic variations in the rocks would be an important criteria in determining their suitability for dimension stone.

3.2 **Medium Scale Prospecting Permits**

Processing of applications for Medium Scale Prospecting permits, which are renewable after one-year term, commenced in October 1992. From October to the end of December 1992, two hundred and two applications were received by the Guyana Geology and Mines Commission, from fifty-five applicants.

A Medium Scale Prospecting Permit covers an area of one hundred and fifty (150) to twelve hundred (1200) acres, and a Permittee may hold several permits. Medium Scale Prospecting Permits are specific to the mineral or minerals which are applied for.

Applications for Medium Scale Prospecting Permits covered widespread areas - from Yarakita in the extreme Northwest of Guyana, Ekereku River in the far West, Port Kaituma and Arakaka in the Northwest District, upper, middle and lower Mazaruni and Cuyuni, Middle Puruni,

upper, middle and lower Potaro, to Siparuni in Central Guyana. The largest number of applications were over Mazaruni (66), Cuyuni (56) and Northwest District (53) areas.

The holder of a Medium Scale Prospecting Permit can apply for a Mining Permit for medium scale mining, which has a tenure of five (5) years and rights of renewal for further periods. The Mining Permit establishes the means for local miners to progressively expand the scale and improve the mining and recovery methods of their operations.

Like the small-scale claim licence, a Medium Scale Prospecting and Mining Permit can only be issued to Guyanese citizens or partnerships of Guyanese citizens, Companies owned by Guyanese, Corporations established in Guyana, Public Corporations and Government organisations, with authority to conduct mining operations.

The Medium Scale Prospecting permit and the Mining Permit, can be issued with respect to any mineral or mineral commodity, including stone products and silica sand.

3.3 Technical Assistance Projects

Seven technical assistance projects were in varying stages of discussion. They are, (i) through the UNDESD, Quality Evaluation of Semi-precious and Gemstone resources (6 months); (ii) Industrial Minerals Development (2 years); (iii) Inter-American Development Bank project for Compilation of Geological data and Metallurgy Advisory Services (2 years); (iv) USGS, Mineral Resource Inventory (3 years); (v) Caribbean Development Bank's STEP Fund - Jewellery Enhancement Preinvestment Study; (vi) Testing industrial minerals and flowsheet development for end products; and (vii) Geological characterisation of industrial minerals.

Of these, only the CDB's STEP Fund Projects were finalised. After the signing of the agreement between GGMC and CDB on October 02, Consultants were shortlisted for the Jewellery Study and proposals were solicited.

Extension of UNDESD Mineral Promotion Project - GUY/85/006

The Terminal Tripartite Review of the project sponsored by the United Nations Development Programme for the Promotion of Mineral Investment in Guyana, agreed on December 02, 1991 to extend the life of the project to accommodate the fielding of a consultant to update the prospectus as prepared under the project.

The report on the Terminal Tripartite Review meeting was received in March 1992. it stated that the Mineral Promotion Project had largely achieved its stated objectives and that the production of the two-volume Prospectus - Gold and Diamonds in Guyana - investment opportunities had contributed to the increased activities in the mining sector. Since other factors played a role in the mining sector, the exact contribution of the Prospectus was hard to measure.

The major activities under the Mineral Promotion project were:

Fielding of three consultants:

- Preparation and publication of the investment prospectus and the investment brochure under a subcontract with a US company;
- Redrafting and printing of geological maps of Guyana;
- Promotional missions by GGMC officials to promote mineral investment in Guyana;
- Training of several GGMC staff members through study tours;
- Procurement of equipment such as computer/printer/software and two photocopiers.

The major outputs were listed as follows:

- a two-volume prospectus has been prepared which was considered "extremely useful" by the NPO;
- several agreements were concluded with foreign and domestic mining companies;
- overseas promotion exercises were undertaken with participation by locally based mining companies;
- the production of geological maps.

The training of GGMC staff was generally successful, although one trainee in drafting skills did not return to GGMC.

The project commenced in January 1986, with an estimated seventeen months duration. It provided for UNDP contribution of US $202,850 and a Government in-kind contribution of G$323,285.

The equipment provided by the UNDP under this project is to be transferred to the Government of Guyana (i.e. the GGMC) at the end of the project.

Table 3(i) **Major Equipment provided by the project**

Item	US $
Computer Compaq 286	5,200
Xerox Rank photocopiers (20	9,400
Software (8)	2,500
Epson Printer	1,500
Consumables, spare parts, etc.	3,194
Total	**US $21,794**

The cost of the extension project to update the prospectus was estimated at US $25,530, to be funded jointly by the UNDESD and the GGMC.

Institutional Support to GGMC - GUY/85/003

The Terminal Tripartite Review meeting held on December 02, 1991 formally closed the Institutional Support project. The report of the meeting was received in March 1992. Activities undertaken under this project were the physical reorganisation of the Chemical Laboratory, the purchase and installation of laboratory equipment, chemicals and laboratory consumables, Recruitment of a Chief Technical Adviser who spearheaded the reorganisation and refurbishing of the Laboratory, the award of three four-month fellowships for training in Fire Assay and Atomic Absorption Spectrophotometry, Emission Spectrophotometry and Mineralogy, in-house training of all levels of laboratory staff.

The project commenced in January 1986, project duration was estimated twenty-nine months. the project provided for a UNDP contribution of US $718,000 and government in-kind contribution of G $195,000.

The project was deemed to be successful, with the achievement of most of its expected outputs. Specifically, the Fire Assay and Emission Spectrographic techniques were reintroduced in the Chemical Laboratory and training of the Analytical Officer permitted greater competence in X-Ray mineralogical analyses using the powder diffraction technique.

The reintroduction of the Fire Assay and Emission Spectrographic techniques was made possible by the acquisition of the Atomic Absorption Spectrophotometer, the 1.5M Wadsworth Spectrograph, the Fire Assay Furnace and the training of GGMC Chemist, Messrs Layne and Bharat. Through the acquisition of a Mercury Hydride system GGMC acquired the facility to determine mercury, arsenic, antimony, selenium, bismuth, tellurium and tin by atomic absorption spectrophotometer.

Mr. David Detra, Consultant in Spectrographic Analyses, made a preliminary visit to the GGMC to evaluate the Spectrographic Laboratory, define its needs and suggest training of a national professional. On a second visit, he examined the rehabilitation of the laboratory, trained technicians and made recommendations for longer term training. Two UN Volunteers were requested for assistance in Geomorphology and Geochemistry. Two Volunteers were recruited in 1991 - Mr. Jasmin Halilovic, Geomorphologist and Ms. Canan Urulbay, Geologist with experience in Ceramic Raw Materials.

The success of the project was partly affected by the resignation and emigration of the fellows, after they had completed their term of service. However, by virtue of the continuous in-house training, the Commission was able to retain the analytical skills acquired through the project.

A new area of work for GGMC will be Industrial Minerals analyses which the Commission how has the capacity to undertake. It was felt that GGMC should move actively and market its skills in chemical analyses. The equipment provided to GGMC under the project are to be transferred to GGMC.

Table 3(ii) **Major Equipment Provided by the Project**

Item	**US $**
Fire Assay 25 Kva electric furnace equipment	15,000
Furnace spares	3,000
Jaw Crusher	6,200
2- Perkin Elmer AAS 2380	49,800
AAS accessories	24,000
Sample preparation equipment	27,600
Petrological equipment	10,700
Computer equipment	15,200
Lab expendable equipment	28,700
Lab apparatus	11,000
Petrological grinder	8,300
Gold assay balance	7,800
Vibratory disc mill	10,200
Lab disc mill	11,200
Mineralogy polishing machine	1,500
Rotap sieve shaker	1,700
Spectrograph	7,000
Total -	**US $238,900**

Venezuelan Technical Assistance in evaluating diamonds and semi-precious stones

Under the Technical Assistance Scheme of the Government of Guyana/ Government of Venezuela Joint Commission, Venezuelan Geologist/Gemologist, attached to the Ministry of Energy and Mines, Mr. P. Venegas, spent two weeks May 25 to June 05, at the Guyana Geology and Mines Commission where he evaluated parcels of diamonds and samples of semi-precious stones. Mr. Venegas also gave introductory training in commercial description and evaluation of diamonds to the professional and subprofessional staff of the Commission.

Mr. Venegas evaluated eight parcels of diamonds totaling 4853.5 carats. Mr. Venegas affirmed that the diamonds he studied 'were generally of first quality, possessing excellent white colour and perfect shape, in addition containing only a few or almost no inclusions'. There were small and large stones which were of first quality.

Mr. Venegas recommended that diamond cutting in Guyana should be expanded, starting with the cutting of small stones and increasing in size as proficiency and experience are achieved. He assessed samples of amethyst which he examined to be of gem-quality and recommended that the best quality should be cut, faceted and polished, and set in gold jewellery. This will add value to the stone and variety to local jewellery manufacturers. Mr. Venegas recommended that likewise, the best quality of tourmaline, rose quartz and banded agate should be cut, faceted and polished for added value.

3.4 Exploration in Prospecting Licence Areas

3.4.1. Romanex - Marudi Mountain Prospecting Licence

During their second exploration year, May 1991 to July 1992, exploration was centered around Marudi Mountain and the Mazoa Hill area 2km to the south southeast, including two adjoining areas to the south and northeast of Mazoa Hill. Mazoa Hill was the main exploration target. Diamond drilling (24 holes totaling 4403.4 metres), ground magnetic surveys, VLF surveys, geochemical surveys - soil sampling, deep auger sampling and rock chip sampling, and geological mapping techniques were employed in an integrated exploration programme.

Bulk mineable open pit reserves of 4,276,000 tons open at depth and containing 354,000 ounces of gold were defined at Mazoa Hill by 2891 metres of drilling (17 holes). Gold mineralisation is stratabound, occurring within a stock work of steep crosscutting quartz veinlets, veins and broad silicified bands associated with strong concentrations of pyrite, pyrrhotite and chlorite within a steeply dipping ferruginous quartzite unit. Other associated minerals are almandites garnet, iron carbonates, magnetite and hematite. Visible gold frequently occurs with phyrrotite - chlorite - garnet combinations.

The ferruginous quartzite is part of the regional lower Proterozoic Kwitaro Sequence of subvolcanics, chemical and clastic sediments with marble, dolomitic marble and banded iron formations, intruded by feldspar porphyries and a south savannah pervasive granitic batholith which gave rise to thermal metamorphism. Romanex's current work is the first to demonstrate the presence of marble and dolomitic marble in the Kwitaro Group.

Guided by geochemical and geophysical anomalies, diamond drilling (3 holes) was conducted in the extension areas to the northeast and south of Mazoa Hill, targeting the possible offset of the Mazoa Hill deposit. Banded iron formations were intersected in both areas, these were overlain by ferruginous quartzite units in the southern area. One of three diamond drill holes sunk at Marudi Mountain intersected a significant band of mineralised ferruginous quartzite at 127 metres.

Romanex plans to increase the open pit reserves on their Marudi Mountain property by increasing the vertical depth of drilling at the Mazoa Hill deposit by 50 metres, by extending the open geochemical anomalies and by further drilling to find new deposits.

Preliminary metallurgical tests of drill core and weathered saprolite gave 88 to 99% recovery of gold after gravity concentration and cyanidation tests.

3.4.2 Goldfield Enterprise Mines Ltd. - Arnik Prospecting Licence

Work done in the Fourth Quarter of the 2nd Year consisted of stream sediment sampling of

the contact between the sandstone and the dolerite sill (8 samples) and pit sampling of alluvial gravels. Nineteen pits were excavated, comprising new pits and expansion of pre-existing pits to facilitate sampling of the hard cemented gravels.

Gold was recovered from pit samples by panning, as earlier sluicing operations proved inefficient for recovering fine gold.

The Arnik property is underlain by sandstones of the Roraima Group intruded by a large doleritic sill of the Roraima Intrusive Suite along the western boundary of the property.

3.4.3 Golden Star Resources - Gold, Diamond Prospecting Licence

1992 marked organisational changes for Golden Star Resources through their amalgamation with South American Goldfields Inc. in May. Golden Star Resources so acquired the Akaiwong, Peters' Mine, Quartz Hill, Aurora and Five Star Prospecting Licence properties.

Mazaruni Prospecting Licence (alluvial diamond)

During 1992 Golden Star conducted exploration on its four Prospecting Licence areas at Mazaruni, as the company sought to delineate reserves of alluvial diamonds and gold at Eping, Saganang, Red Hill Loop and Apaikwa. A programme of mapping and banka drilling to delineate gravel deposits was carried out. This was followed by mechanical bulk sampling, and processing of alluvial samples in a wash plant to recover diamond and gold. The results of the sample processing exercise were used to evaluate the gravel deposits.

In addition, heavy mineral sampling programmes were undertaken at the Saganang and Eping Prospecting Licence areas to search for kimberlite and lamproite satellite minerals. The Company indicated that they had not located a commercial deposit, and that they would re-focus their exploration efforts to investigate the potential of the Mazaruni/Roraima area for diamond bearing lamproite dykes such as have been found in similar host rock lithologies in Venezuela.

Akaiwong, Aurora, Five Star Prospecting Licences

Exploration was continued at Aurora and Akaiwong, but work at Five Star remained on hold.

At Akaiwong, a programme of pitting, trenching, geological mapping of trenches and diamond drilling (8 holes totaling 765 metres) was completed in 1992. Preliminary results were not encouraging.

The Akaiwong area is underlain by the Proterozoic Cuyuni Formation, a series of greenschist facies mafic to felsic metavolcanics intruded by felsic intrusives and later dolerite dykes of the Avanavero Suite. Gold occurs pervasive quartz veins and stringer stockworks in a

hydrothermally altered, fractured and sheared porphyritic dioritic intrusive, and in quartz veins and stringers in large linear shear zones in the volcanics.

Aurora

The work done by Denison at Aurora from 1989-1991, which consisted of airborne and ground magnetometry photogeological interpretation, trench sampling and geochemical surveys, surface and underground mapping and sampling and diamond drilling (56 boreholes for over 9,000 metres), was reviewed. Golden Star undertook a programme of geological mapping, trenching and geochemistry to follow up geological and geochemical anomalies.

The Aurora property lies across the contact between Proterozoic folded metasediments and metavolcanics of the Cuyuni Formation in the NE and the Proteroizoic Aurora granodiorite to the SW, parallel to the NW-SE strike/foliation of the greenstones. The folded metasediments and metavolcanics are locally cut by quartz stringers and veins.

Gold mineralisation proferentially occurs in extensively altered felsic flows and tuffs, intruded by an epizonal, multi phase granite to dioritic pluton (Aurora batholith) and tectonically later porphyries, as exposed at Mad Kiss.

Good potential exists for a number of targets, principally underground potential on vein type mineralisation at Aleck Hill and South Mad Kiss and possibly for bulk mineable open pit potential in stock work type mineralisation at Mad Kiss. In addition there are other attractive targets at Mad Kiss, East Walcott Hill, Walcott Hill and many other gold count geochemical anomalies throughout the property.

Quartz Hill Prospecting Licence Joint Venture between Golden Star Resources and Omai Gold Mines Ltd

Quartz Hill Prospecting Licence, which adjoins the Omai Gold Mine property is underlain by intercalating Proterozoic mafic to felsic volcanics, volcaniclastics and sediments, of the Barama - Mazaruni Supergroup, deformed by the Trans Amazonian orogeny and intruded by dioritic to granitic bodies - of Trans Amazonian age. Mafic dykes of the Avanavero (Roraima Intrusive) Suite cut all of the older rocks.

A study integrating the Omai and Quartz Hill geological data, airborne magnetic data, radar imagery, air photographs and topographic data indicated a roughly east-west trending lineament that coincides roughly with Omai's Wenot Lake zone.

Based on the results of the study a deep auger sampling programme was carried out. Encouraging results were obtained in the north-east section of the property.

Peters' Mine

Golden Star Resources indicated that they would relinquish the Peters' Mine Prospecting Licence property.

The Peters' Mine quartz veins and stock work occur within a series of metavolcanics and/or metasedimentary rocks and a broad shear zone surrounded by a felsic tonalitic intrusive to the east. Gold occurs in quartz veins and stringers in the sheared host rock; it is free milling within the saprolitic horizon, but appears contained with the sulphides, mainly pyrite, in the fresh rock.

The prominent shear zone and its footwall contact rocks, which forms the Peters' Mine, Herods Hill, Mango Landing, Red Hill structural trend, approximately 150 metres width as defined by ground magnetics, is the principal target for further exploration. There are good possibilities for open pit and underground reserves and reportedly, 54,000 tons of tailings material (which is yet to be evaluated) grading 14 g/tonne, exist.

Considerable exploration was done at Peters' Mine, by the United Nations and the Geological Surveys (airborne magnetic) and PUT-EM Surveys and diamond drilling) in 1960, and by - Homestake - South American Goldfields joint venture partnership in 1987-89 (geochemistry, ground and air magnetics, diamond drilling).

Cambior Inc/Golden Star Resources Limited joint venture

Tikwah Prospecting Licence

The Tikwah Prospecting Licence area is underlain by an assemblage of mafic to felsic lavas and pyroclastic rocks cut by dolerite dykes, all of Proterozoic age. The felsic volcanic unit hosts a system of gold-bearing quartz veins which were mined in the 1940's at Tikwah mine. Mafic volcanic flows also host gold-bearing quartz veins at Echo Creek.

In 1992 semi-detailed geological mapping of known gold occurrences and reconnaissance soil geochemistry over the entire property were undertaken. Two major geochemical anomalies were uncovered. Heavy mineral concentrates showed an assemblage of quartz crystals, amethyst, beryl, zircon and possibly, epidote.

Aremu Prospecting Licence

Exploration work confirmed the existence of a shear zone stratabound within bands of iron-rich sediments, associated with a magnetic anomaly. Soil geochemistry over this shear zone identified gold anomalies in saprolite associated with carbonaceous bands and hydrothermal alteration.

Geologically, the area is described as being underlain by predominantly clastic and pyroclastic sediments and minor volcanic flows of the Barama - Mazaruni Supergroup occurring between granitic batholiths.

An extensive follow-up geochemical programme was carried out in 1992 in an attempt to obtain details of mineralisation in anomalous areas described during the earlier 1991 soil sampling programme.

3.5 **Chemical laboratory**

The Chemical Laboratory comprises the Sample Preparation Section, Fire Assay, Wet Chemistry (main) Laboratory, Spectrographic, and Atomic Absorption Spectrophotometry Laboratories. The work completed by the Chemical Laboratory in 1992 is summarised in the accompanying Table 3.5(i).

3.6 **Petrological Laboratory**

A summary of the work completed by the Petrological Laboratory in 1992 is given in the accompanying table 3.6(i). The Laboratory offered services in mineral identification free of charge to local miners. In 1992 three Olympus BHT System Microscopes and one Olympus PM 10AD Photomicrographic System were acquired and two Leitz Wetzlar microscopes were returned after repairs in Canada by Golden Star Resources Limited. With these new and repaired microscopes, the Petrological Laboratory was able to resume microscopic analyses of rocks.

Table 3.5(i)

Analytical Work done by the Chemical Laboratory for 1992

Samples Submitted	Sample Type	Location	No. Of Samples	Test Required or Element Determined	Technique	Remarks
K. Persaud Manager, Geol.	Rock	Mid Maz.	1	Au	Aqua Regia/MIBK/AAS	
K. Persaud Manager, Geol.	Clay		1	Complete Chem. Analyses	a) HF'cold attack'/AAS b) Loss on Ignition c) Spectrographic analysis	
J. Ghansam, Snr. Geol.	Clay	Rockstone	7	Physical Properties of Clay	a) Plasticity T est b) Air & oven drying Shrinkage Test c) Firing shrinkage test at 1100C d) Firing colour determination at 1000 C and 1100 C e) Porosity tests - hot & cold Methods f) Bulk Specific Gravity T ests	
J. Mingo, Snr. Min. Eng.	Rocks/ Gravel	Issano	20	Au	a) Batelling b) Amalgamation & Parting c) Fire Assaying	Fire Assaying held back due to electrical problems.
C. Urulbay, Geologist	Bauxite Overburden Clay	Guymine	36	a)Phys. Prop. Test b)Wet sieve analy. c)Complete Chem. Analysis	a) As in (a) to (e) in 2 above b) Wet sieving, drying & weighing c) Loss of Ignition d)HF 'cold attack'/AAS e)Spectrographic analysis	To be completed

Agency/ Representative	Samples Type	No. Of Samples	Total weight of samples	Test Required or Element Determined	Technique	Cost
Guyana Police Force	Yellow Metal	3		Au	Wet Chemical/AAS	
	Yellow Metal 9 - diamond ring	1		Au		Nil
	Yellow Metal Earring	1		Weight	Weighing on analytical balance	
Ms. C. Curtis	Sands	3	18 kg	Dry Sieve Analy.	Dry Sieving and weighting	$2, 700
Mr. J. Alexander	Silica Sand	1	2 kg	a) Complete Chem. Analysis b) Sieve analysis	a) Drying, sieving & weighing b) Loss of Ignition c) HF 'cold attack'/AAS d) Spectrographic analysis	$13,425
		16	2 kg	Sieve analysis	Drying, sieving & weighing	

Agency/ Representative	Samples Type	No. Of Samples	Total weight of samples	Test Required or Element Determined	Technique	Cost
Mr. D. Dublin	Soil	80	2 kg.	Free Cold	a) Batelling b) Amalgamation and Parting	$40,000
Mr. J. Carter	Soil	14	84 kg.	Sample	a) Drying at 60 C b) Crushing & Splitting c) Pulverising to '-125 km d) Coning and Quartering e) Weighing	$28,000
					TOTAL COST	$84,125
				Preparation		

Table 3.6(1)

Petrological Laboratory Report for 1992

Month	Person/Company	Location	Sample Type	No. Of Samples Received	No. Of Samples Completed	Analysis Required	Analytical Method
Jan	Omai Gold Mines Ltd	Omai	Pulverised	8	8	Certification of export	Visual and microscopic
	Hexagon Mineral (Guyana) Ltd	Bonasika and Flat White Rock Quarry	White Sand Feedpan	2	2	Certification for export	" "
	Omai Gold Mines Ltd	Omai	Saprolite and Core	11	11	Certification for export	" "
	Mr. J. Halilovic Geologist	Imbaimadai	Concentrate of Black Sand	37	31	Qualitative mineral Characterisation	Binocular microscopic
Feb	Omai Gold Mines Ltd	Omai	Rock Saprolite	17	17	Certification for export	Visual and microscopic
	Hexagon Mineral (Guyana) Limited	West Bank Mine No 3 Linden	Kaolin	1 - (32 lbs)	1	Certification for export	Visual and microscopic
	GUYMIDA	Yarrowkabra	White Sand	1 - (15 lbs)	1	Certification for export	Visual and microscopic
	Mr. J. Hallilovic Geologist	Imbaimadai	Concentrate Of Black Sand	Continued analysis Samples Submitted in January	6	Qualitative mineral Characterisation	Binocular microscopic
March	Golden Star Resources Limited	Red Hill Loop Eping, Perenong	Batel Concentrate	23	23	Certification for export	Visual and microscopic
April May	S. Lowe, Geologist	Ayanganna	Field Assignment Black Sand and sieve concentrate	4	3	Topaz and mineral characterisation	Binocular microscopic
	Golden Star Resources Limited	Red Hill Loop, Potopa Creek	Heavy mineral	29	29	Certification for export	Visual ann microscopic

Petrological Laboratory Report for 1992 (con't)

Month	Person/Company	Location	Sample Type	No. Of Samples Received	No. Of Samples Completed	Analysis Required	Analytical Method
June	S. Lowe, Geologist	Ayanganna	Continued analysis Of samples submitted In May	-	4	Certification for export	Visual and microscopic
	White Sand (Guyana) ltd	Sand Hills, Barama River	White sand kaolinitic Clay and soapstone	5	5	Certification for export	Visual and microscopic
	Grorge Hicks Mining Company	Potaro	Saprolite	1 - (300 lbs)	1	Certification for export	Visual and microscopic
July	Korea Mining Promotion Co.	Ianna-Barama	Soil	27	27	Certification for export	Visual and microscopic
	Golden Star Resources Ltd.		Rock/Soil	5	5	Certification for export	Visual and microscopic
	White Sand (Guyana) Ltd		White Sand	1-535 lbs	1	Certification for export	Visual and microscopic
August	Golden Star Resources Ltd	Akaiwong	Pulverised Soil	159	159	Certification for export	Visual and microscopic
	Mr. J. Halilovic, Geologist	Imbaimadai	Battel Concentrates	10	10	Mineral Characterisation	Microscopic
	Mrs. K. Livan for Mr. Yacoob Ally A. Mazarally and Sons	Kwebana, NWD	Quartz (rock)	2	2	Mineral Characterisation For gold	Microscopic
Sept.	Golden Star Resources Limited		Heavy Mineral concentrate	64	64	Certification for export	Visual and microscopic
October	Trans Guyana Mines	Shell Beach	Shell	1	1	Certification for export	Visual and microscopic
Nov.	Roraima Mining Co.	White Sand	W hite Sand	1-6016	1	Certification for export	Visual and microscopic
	George Hicks Mining Company	Mazaruni	Saprolite/ Pulverised	15	15	Certification for export	Visual and microscopic
Sept-Dec	Mr. S. Lowe Geologist Mr. Persaud, Mngr Geol	Ayanganna/ lmbaimadai	Concentate/ Pulverised	190	190	Mineral Characterisation	Miscroscopic
Oct.	Roraima Mining Co		White Sand	3	3	Heavy Mineral Analysis	Heavy Liquid Separation And Microscopic examined (job work)

Thin Section

Month	Person/Company	Location	Sample Type	No. Of Samples Received	No. Of Samples Completed	Analysis Required	Analytical Method
Jan.	Mr. S. Lowe Geologist	Ayanganna	Rock	2	2	Thin Section	Sawing/grinding, etc.
Sept.	Ms. T. Finerty Geologist	Mabura	Rock	12	12	Thin Section	Sawing/grinding, etc.
	Geologist						

4. LEGAL DEPARTMENT

Prospecting/Mining Licences, Mineral Agreements, Reconnaissance Survey Applications

In 1992, the Commission concluded two Prospecting Licences and one Mineral Agreement, which covered seven properties. Negotiations were initiated for rights for reconnaissance surveys in the upper Potaro and upper Mazaruni basins, and the areas around Wenamu and Tassawini. In addition, there were extensive discussions with the Ministry of Finance, Commissioner of Inland Revenue and Attorney General's chambers over four draft mineral agreements, for both mineral exploration and exploitation.

Plaza Mining Company Limited of New York and Cambior Incorporated of Val d'Or, Quebec, signed Prospecting Licences for the Winter's Mine and Tamakay areas on November 27 and December 31, respectively. Roraima Mining Company Limited, a local Company signed a Mineral Agreement on September 07, 1992 for the exploration, evaluation and mining of deposits of gold, silver, precious stones and valuable minerals in properties at upper Sir Walter, Ianna, Imotai, West Fork, Quartzstone, Wariri and Aranka.

Draft Mineral Agreements were being processed for HGB Ventures Limited of USA, Golden Star Resources, Cambior Inc. and Caribbean Mining Development Investment Company (CAMDICO). CAMDICO has applied for a Mining Licence over an area at Groete Creek. On March 26, Trans Guyana Limited with principals in Wisconsin, USA, was granted a Mining Licence for shell along the beaches in the North West District.

Negotiations were held with Kretschmar International Geoscience Corporation (KIGC) of Canada and Golden Star Resources for the finalisation of agreements for reconnaissance surveys in the Wenamu and Tassawini areas for base metals (KIGC) and in the upper Potaro and upper Mazaruni areas for gold and diamonds (GSR).

Prospecting Licences for stone at Arimai and sand at Makouria, were finalised and awaiting the signature of the representative of Essequibo Timbers Limited.

An application by Exall of Canada for a transfer of the Brex Mazaruni diamond property was being processed.

Mining Amendment Regulations

On October 24, 1992, Mining (Amendment) Regulations No. 12 of 1992 came into force and thereby amended Regulations 3, 13, 27, 29, 30, 44, 75, 140, 182 (2), 186 and 187 of the Principal Regulations. These represented the finalisation of many weeks of extensive discussions and consultation between the Mines, Legal and Geological Services Divisions and the Guyana

Gold and Diamond Miners' Association (GGDMA).

Primarily, these regulations established the procedural and other requirements, including provisions for environmental protection, for the introduction of Medium Scale Mining Permits, for the extension of the size of river locations to include both sides of the river bank to a maximum width of 300 feet. The amendments also amended the Table of Fees and Rentals of Schedule 1 of the Principal Regulations and increases to Fees and Rentals. Further, the procedure for conveyance of gold, valuable minerals or precious stones was simplified with the abolition of the requirement for sealing same, and the period over which a claim may be challenged was extended from one to two years.

Order No. 53 of 1992 was passed to exempt sections (632) and (3) of the Mining Act to holders of Claim Licences. Together with the amendment to regulation 29, this effectively allows for automatic renewal of claim licences.

The royalties for bauxite and valuable minerals, minerals or metals respectively, were each adjusted to three percent (3%) ad valorem.

In 1992 the Legal Department was run by Legal Officer, Ms. Rosemary Benjamin, who joined the staff in March. In the absence of a Legal Adviser, Ms. Benjamin worked closely with Mr. M. Edwards Attorney-at-Law, whose services the Commission retained.

5. MINES DIVISION

5.1 Technical Unit

5.1.1. Hydrological Surveys

The Hydrometeorological Service of the Ministry of Agriculture undertook hydrological surveys on GGMC's behalf, with field support and organisation from GGMC. From November 12 to December 14, 1991, surveys were undertaken in the Potaro River, Kuribrong, Essequibo River, and Konawaruk Rivers in the middle Essequibo River area. A second exercise was undertaken from June 2 to July 1, 1992 at the Karowreing River, Mazaruni River below and above Imbaimadai, Mazaruni River at Kamarang and above Kamarang.

The objectives of the hydrological surveys were:

a) to measure the discharge of identified streams;
b) collect water samples for chemical water quality analyses;
c) collect samples for sediment concentration.

This data is to be used in the assessment of the environmental impact of mining on the

riverain systems and in the formulation of environmental guidelines, with particular reference to the Environmental Management Agreement for medium and small scale miners. Reports on these two exercises were submitted by the Hydrometereological Service in 1992.

Middle Essequibo River Hydrological Survey

Summary results of sediment analyses in the middle Essequibo River area, are given in the table 5(i) which follows.

Table 5(i)

Name of Stream	Starting Date	Duration Time (hrs)	Mean Concentration (PPM by wt.)	
Potaro River at	91.11.18	15:45	1.95	1170.5
Veira's Camp Site	91.11.19	8:40	2:03	786.6
	91.12.03	15:20	1:42	764.5
	91.12.04	9:25	1:42	1361.3
Potaro River	91.11.29	16:50	1:42	1023.1
above Kuribrong	91.11.30	16:11	1:40	423.5
Name of Stream	**Starting Date**	**Duration Time (hrs)**	**Mean Concentration (PPM by wt.)**	
Kuribrong River	91.11.24	11:45	0:62	578.5
@1.25 mile above	91.11.25	11:20	1:30	973.7
mouth	91.11.26	16:59	0:55	1152.1
	91.11.28	10:30	1:07	949.3
Essequibo River at	91.11.13	14:20	2:42	1594.8
Jardine's Camp	91.11.14	10:00	2:53	822.9
	91.12.09	10:55	2:62	1292.2
	91.12.10	9:20	2:00	1032.2
Essequibo River	91.11.15	12:25	2:17	318.1
above Konawaruk	91.11.16	11:00	2:17	74
near Waraputa	91.12.06	13:10	2:67	1710.9
	91.12.07	9:45	2:1	1411.4
Konawaruk River	91.11.20	11:45	1:42	1076
above mouth	91.12.05	10:30	1:25	718.1
	91.12.11	9:34	1:13	1290.3
	91.12.11	15:12	1:28	1099.3

PH Values

Ph values obtained in the Potaro River (4 samples) ranged from 3.7 to 4.5; Essequibo River (3 samples) 4.8 to 5.5 and in the Konawaruk river two 2 samples returned values of 5.2 and 5.4.

Table 5(ii)

Summary results of Discharge Measurements are tabulated below.

Name of Station	Date	Width	Area	Mean Velocity f/s	GAGE Height Change (f/t)	Discharge CFS
Potaro River	91.11.29	473.5	5,616	0.22	0.00	1,230
above Kuribrong	91.11.30	471.0	5,323	0.27	0.00	1,450
Potaro River	91.11.18	818.0	8,346	0.64	2.66	5.250
at Vieira's	91.11.19	815.5	8,927	0.54	2.42	4,860
Camp Site	91.12.03	717.5	7,113	0.42	0.02+	3,022
	91.12.04	723.5	7,406	0.50	0.02+	3,680
Essequibo River	91.11.15	1,647.8	25,500	0.76	0.00	19,500
near Waraputa	91.11.16	1,647.8	23,700	0.81	0.01+	9,300
above Konawaruk	91.12.06	1,592.0	23,900	0.45	0.01+	11,500
River	91.12.06	1,592.0	23,500	0.51	0.00	12,100
Essequibo River	91.11.13	1,988.2	25,120	0.68	0.02-	17,110
Jardine's Camp	91.11.14	1,988.2	25,500	0.76	0.02+	19,500
	91.12.09	2,345	26,800	0.81	0.08+	21,600
	91.12.10	2,472	31,500	0.97	0.18+	0,700
Konawaruk River	91.11.20	141	580.8	0.27	0.01-	156
approximately	91.12.05	122	442.6	0.76	0.03+	336
1000 ft above	91.12.11	147.5	892.0	1.27	0.07-	1,130
mouth	91.12.11	142.8	854.0	1.08	0.06	919
Kuribrong River	91.11.24	274	1,860	0.53	0.02-	956
approximately 1	91.11.25	275.5	1,788	0.47	0.00	850
mile above	91.11.26	283	1,753	0.52	0.02-	920
mouth	91.11.28	282	1,812	0.52	0.02-	937

Upper Mazaruni Hydrological Survey

Table: 5(iii) **SUMMARY OF RESULTS OF SEDIMENT ANALYSIS**

NAME OF STREAM	DATE	TIME OF SAMPLING	DURATION HRS	MEAN CON-CENTRATIO N PPM BY WT
Karowrieng River at Persaud's Camp	92-06-06	12:50	0.43	1521.28
Karowrieng River at Persaud's Camp	92-06-09	15:40	0.40	1211.84
Mazaruni River below Imbaimadai	92-06-12	10:28	0.48	423.65
Mazaruni River below Imbaimadai	92-06-12	12:40	0.50	639.07
Mazaruni River above Imdaimadai	92-06-13	12:28	0.37	807.67
Mazaruni River above Imbaimadai	92-06-15	8:57	0.42	627.2
Mazaruni River at Kamarang	92-06-23	12:22	0.38	644.37
Mazaruni River at Kamarang	92-06-27	11:09	0.33	625.52
Mazaruni River above Kamarang at Rodwell's Landing	92-06-29	17:10	0.35	587.77
Mazaruni River above Kamarang at Rodwell's Landing	92-06-30	10:23	0.35	301.69

Table 5. (iv) **SUMMARY OF RESULT OF DISCHARGE MEASUREMENTS**

NAME OF STATION	DATE	WIDTH (FT)	AREA (FT)	MEAN VELOCITY (F/S)	GAGE HEIGHT CHANGE (FT)	DIS-CHARGE (F/S)
Karowrieng River at Persaud's Camp	92-06-08 92-06-09	126 141	2158 3028.4	1.92 1.46	0.93 -0.09	4200 4410
Mazaruni River Below Imbaimadai	92-06-12 92-06-12	301 296	7381 7508	2.60 2.55	-0.13 -0.15	19200 19200
Mazaruni river above Imbaimadai	92-06-13 92-06-15	221 215	4783 3852	2.47 1.77	-0.21 0.11	11800 6800
Mazaruni river at Kamarang	92-06-23 92-06-24 92-06-27	438 427 414	9734 9399 10815	2.95 2.70 3.64	-0.09 0.01 -0.03	28700 25400 39400
Mazaruni River above Kamarang at Rodwell's Landing	92-06-29 92-06-30	405 394	9444 9418	3.06 2.85	-0.01 -0.06	28900 26900

5.1.2 **Environmental Management Agreement**

The Division commenced work on the formulation of an Environment Management Agreement which is intended to control the impact of small and medium scale mining operations on the environment, to give direction to environmental management during and at the end of mining operations and to establish operational parameters for environmental management in mining. As intended, the technical reports from projects undertaken with sponsorship from the Technical Assistance Group (TAG) of the Commonwealth Secretariat, form an essential background for the Environmental Management Agreement. These reports are 'Review of Environmental Aspects of Dredge and Small Pit Mining Operations' by Dr. E. N. Watkin, for Cremer and Warner of London, and "Report on the Technological and Operational aspects of dredge and small scale open pit gold and diamond mining in the Co-operative Republic of Guyana" by Alan Bradley of the Department of Mines, Western Australia.

5.2 Administration

5.2.1 Mining Stations and Bartica Regional Office

During the first half of the year Mines Officers undertook verification exercises in Ekereku, Potaro and Cuyuni areas, and Ranger Garraway was stationed at Mahdia in response to reports by Golden Star of illegal workings on their Prospecting Licence areas.

In the latter half of the year, three of the proposed five Mining Stations were established in Potaro/Mahdia (supervised by Mines Officer Ramkhelawan), Mazaruni (supervised by Senior Mines Officer Butters), and Cuyuni (supervised by Surveyor L. Fredericks). Occupational health and safety with respect to small and medium scale operations was the primary focus of inspection activities. However, operations from the Mining Stations were severely restricted for the following reasons.

(a) **Cuyuni Station** - Malaria infection of the supervisor, Surveyor, L. Fredericks and a significant number of crew members resulted in the non-completion of most of the scheduled activities for this station, despite Senior Ranger DeYoung remaining on site for the planned duration.

(b) **Mazaruni Station** - After spending two weeks at this location, Senior Mines Officer Butters was recalled for Registration and Election duties. The station was subsequently closed after five weeks of its planned duration of twelve weeks.

(c) **Potaro/Mahdia Station** - Mines Officer Ramkhelawan was recalled after spending one week at Mahdia, for stationing at Omai. However, whilst based at Mahdia, Mr. Ramkhelawan was able to verify in excess of one hundred claims in the Konawaruk river, and investigate a number of disputes.

It should be noted that in accordance with the Mining Act and Regulations, only Mines Officers are permitted to verify claims. This meant that no verifications were possible in the absence of the Mines Officer responsible for the Mining Station.

Rangers D. Persaud and C. Bradford were stationed at the Commission's regional office in Bartica for the entire year.

5.2.2 Mining Offences

During the year 1992, fifty charges were filed for breaches of the Mining Act and Regulations. Of these, five were withdrawn and replaced with more appropriate charges. Prosecution of twenty-nine of the fifty charges commenced during the year and at the end of 1992 these were still before the Court. The remaining twenty-one were called and postponed for 1993.

Court at Bartica was held seven times during 1992, and forty-eight cases which were

pending since 1989, were concluded. Forty-six cases were dismissed, nineteen for non-service of summons, and twenty-seven for lack of prosecution, after out-of-court settlements were concluded between GGMC and the offending parties.

A total of sixty-eight charges were still before the Court at the end of 1992, eighteen of which were for charges filed before 1991. Mines Officer A. Bunbury prosecuted at the Bartica Magistrate's Court, on behalf of the Commission.

Disputes and Challenges

Throughout 1992, Hearing Officer Magistrate Ms. Juliet Holder-Allen heard and adjudicated on disputes and challenges made under the Mining Act and Regulations.

5.2.3 Registry Section

During the year emphasis was placed on accuracy and efficiency with respect to the filing and retrieval of records and statistical data, and there was some improvement in these areas.

The Registry section was stretched out by the ever-increasing work load occasioned by an expansion of small-scale mining activities. However, by undertaking substantial overtime work, the section was still able to meet the statutory deadlines for the preparation and submission of the 'List of Claims in Existence' and the 'List of Claims Abandoned', for printing in the Official Gazette.

5.2.4 Making additional lands available for mining by local operators

To give effect to Government's decision to make additional land available to local miners, preparatory work commenced in the 3rd quarter, to facilitate the opening of restricted areas - State Mining Reserves and Closed Areas - and the equitable distribution of ground. Preparations were initiated, which included the compilation of description of all the State Mining Reserves and Closed Areas, and the acquisition of maps for the demarcation of blocks in the Puruni and Aremu rivers. However, this programme was temporarily shelved in October, as new policy directions were awaited.

5.3 Inspection Tours

5.3.1 Gold Mines

Mazda's Konawaruk operations

Senior Mining Engineer G. Howell, with Senior Mines Officer G. Best, inspected the alluvial gold dredging operations in the upper Konawaruk, on March 10 and 11.

Mining was in progress at the St. Mary's and Hammer Head areas. Mining was done using four fleets of dredges, working in conjunction with 'bailer' dredges which rehandled and emplaced the tailings. Six fourteen inches (6-14") diameter dredges (2 fleets of 3 dredges) operated at St. Mary's. The first dredge excavated the ore which was progressively re-worked by the succeeding dredges. The Hammer Head operation was similar; there were two fleets, each with two ten inches (2-10") diameter dredges.

The ore was processed by wide sluice boxes with riffles, with the heavy material feeding into trommels. Trommel undersize reported to a 'Knudson bowl' centrifugal classifier and the fine undersize material passed into a production box. The final concentrate in the production box was recovered by mercury amalgamation and burning.

Topographic surveys of mined out areas and banka drilling were used for grade calculation, grade control and mine planning. Twenty-four and a half miles of laterite capped road was constructed from Mango Landing on the left bank of the Essequibo via Tumatumari, to Mazda's mines at upper Konawaruk. Another ten miles of road was planned to join Seballi point on the right bank of the Essequibo River opposite Mango Landing to Waraputa trail, to facilitate the barge service which the Company planned to institute.

Exploration of the alluvial deposits at upper Konawaruk was done by B.G. Consolidated in 1951-53 who commenced a short-lived Bucket Wheel dredging operation in 1958 (the operation was aborted primarily due to financial problems experienced by the Company). Verification banka drilling was done by GGMC and Business Association RUDIS of Yugoslavia in 1984-85, and mineable reserves of 24 million cubic metres at an average grade of 0.22 g/m were calculated for the upper Konawaruk placers. The bedrock geology consists of metasediments of the Barama Mazaruni supergroup, intruded by trans Amazonian granitic stocks and porphyries, with later dolerite intrusives. Granitic rocks and porphyries are prevalent.

Mazda was granted a mining concession in March 1990 based on the reserves defined in the upper Konawaruk by the earlier exploration.

Omai Development Works

On March 12 and 13, Senior Mining Engineer G. Howell, assisted by Senior Mines Officer G. Best, made a tour of inspection of Omai Gold Mine's development operations.

Mining of low grade saprolite (0.8 g/tonne) was being done by a fleet of five 85-tonne Caterpillar trucks loaded by a 992C Caterpillar loader, to expose the underlying hard rock. Low grade saprolite was stockpiled; uneconomic hard rock would be used for plant construction.

Foundations were being used for the primary crusher and the Mill, and work was ongoing in mine planning, mine geology and quality control to plan bench configuration and minimize mine waste dilution. Development activities were on schedule.

22 Miles Issano - Hicks' Mining Lease

From May 21-23 Senior Mining Engineer J. Mingo, assisted by Senior Mines Officer G. Best inspected Patrick Periera's open pit mining operations at 42 Miles Issano.

After drilling and blasting the hard rock ore was excavated and loaded by a 235-backhoe on to a 25-tonne truck for haulage over 200-300 metres to a stockpile. Saprolite overburden, which needed no blasting, was stockpiled as low grade ore. The height of the mine face at the time of the visit was approximately 33 metres. A bulldozer was used to maintain the haul road, and mine dewatering was done by six-inch gravel pump leading to an 8 x 6-inches pump.

A processing plant was being installed - it consisted of a 80-ton per hour (maximum capacity) jaw crusher a 150-ton per hour (maximum capacity) impact crusher, a trommel with a separating screen which recycles its oversize through the impact crusher and discharges its undersize into a centrifugal bowl. The plant will be fed from the stockpile by a conveyor. Tails from the concentrator are stored in a tailings pond of 33,000 yd capacity.

Gold mineralisation occurs in subvertical shears in tuffs which are intruded by a granitic stock, part of the Okuwa batholith. Granite and tuffs are pervaded by chlorite - epidote alteration. Silica flooding, occurs locally, and manganese oxides, and sulphides are present.

14 Miles Issano

Two gold mining operations in the George Hicks mining concession in the east Kaburi area were inspected by Senior Mining Engineer J. Mingo with Senior Mines Officer G. Best, on May 25.

At Richard Carter's operation, overburden (2-3ft deep) and underlying saprolite ore were stripped by hydraulicking, fragmented and channeled into a sump. The slurry was pumped into a sluice box. The mine face was approximately 48 feet high and 72 feet wide. At the second operation, ore was excavated by hydraulicking, and fed directly into a sluice box.

Gold mineralisation in the Kaburi goldfield is associated with quartz-carbonate veins structures in a package of volcanic sedimentary rocks within the Mazaruni greenstone belt, which are intruded in the southwest of the area by the El Dorado granite. The granite and greenstones are intruded by NE to NNE trending dolerite dykes of the Avanavero instrusive suite, and all of the earlier rock types are blanketed by white and brown sands belonging to the Cretaceous to Pleistocene Berbice Formation. The Mazaruni Group rocks have been tightly folded and sheared.

Mineralisation in the Hick's concession area occurs in a subvertical zone of hydrothermal alteration and quartz veining, in foliated metavolcanics (mainly andesite to basalt) with unfoliated granodiorite and diorite sills.

5.3.2 **Bauxite operations**

On March 24-28, Senior Mining Engineer J. Mingo and Senior Mines Officer G. Best inspected GUYMINE's Linden and Kwakwani bauxite operations and the operations of Aroaima Bauxite Company.

Linmine

East Montgomery, Kara Kara, North East Kara Kara, North Dorabece and Dorabece mines were inspected on March 24-28. No mining planned for Dacoura mine in 1992.

At Kara Kara, mining activities were terminated. Proven reserves of 1.6 tonnes remained. Stripping in North Dorabece was being undertaken with a 1197 Bucket wheel excavator, three scrapers and a dragline. The ore was exposed in preparation for mining. At East Montgomery stripping was being undertaken by a 1310 Bucket Wheel excavator, twelve scrapers and a dragline. The Bucket wheel excavator was extending the mine face.

Kwakwani

Linmine's Kwakwani mines were inspected on March 27. Due to a reduced demand for metal grade ore from the Kwakwani mines, a large existing stockpile, and the imminent closure of Dayco's Block 5 and 2 Manaka operations, stripping and mining activities at Kwakwani were subdued. Mining was only being undertaken at 8 Chimeri and stripping at 24 Green Creek.

Aroaima

Aroaima Bauxite mines were inspected in March 23 and 24. Mining was in progress at the South mine, while overburden removal was being done at Block one of the North Mine, preparatory to mining. Aroaima Bauxite Company (ABC) had undertaken a small amount of stripping. Most of the stripping was done by Green Mining Incorporated with a fleet of 631 E Scrapers, and Boskalis was contracted for overburden removal by dredging, which was almost completed at the time of the inspection.

ABC was mining at the southern end of the South mine, using backhoes and 769 C Trucks, with no drilling and blasting. Overburden was dumped on mined out areas and ore was placed in three stockpiles - for metal and chemical grades - to reduce the moisture content to less than 18% prior to its being fed into the dryer.

A new crusher of rated capacity 800 tons per hour was installed in October 1991. Due to design problems, its operating capacity was 250 tons per hour. It was fed directly by trucks or front end loaders. A new scrubber was installed, which reduced dust emissions.

Inspectors' Reports

Inspector's reports were completed for each of the inspection visits described. Follow-up tours were not made during the second half of the year.

5.3.3 Silica Sand, kaolin operations

The Silica Sand pits along the Soesdyke-Linden highway and the kaolin pit at Topira were inspected in March by Senior Mining Engineer J. Mingo, together with Senior Mines Officer G. Best.

5.4 Mineral Processing

Negotiations between the Institute of Applied Science and Technology (IAST) and the Commission, which commenced early in the year, were completed in November with the signing of an agreement for the lease of the Pilot Plant building, Mineral Processing Laboratory and equipment and office accommodation. The Mineral Processing Department subsequently assumed occupancy of the leased buildings.

Research activities, including those planned for the Fine Gold Recovery Programme which was scheduled for continuation in 1992, were not carried out during the year. However, organisation of the Department commenced towards the end of the year, which should facilitate an early start to research activities in 1993.

5.5 Emergency repairs to the Anarika-Suribana road

The Geology and Mines Commission commenced a programme of emergency repairs to the Anarika-Suribana section of the Wismar-Suribana road in August. Repairs were concentrated around Arawai hill foot where a large depression made the road near impassable. In August 40 feet of revetments were installed near Arawai.

In August and September, the depression at Arawai was infilled using sand and laterite hauled from deposits nearby. Ten miles of road were repaired altogether, at a cost of approximately under $3.8 million. Rental of equipment accounted for the main part (90%) of the cost.

Green Mining Incorporated was hired to provide and operate equipment for the road repairs. This latter included felling of trees, debushing, excavation to aid road drainage, water pumping, placement and compaction of sand and laterite.

Senior Mining Engineer, Mr. R. Squires who was in charge of the road repairs project, emphasized the need for continual maintenance of the road, especially after the rainy season.

5.6 Drilling

Core Drilling

Exploration drilling for bauxite was executed at Aroaima during the third and fourth quarters of 1992, on a sub-contract from Guymine for Aroaima Bauxite Company. A total of three thousand six hundred feet (3,600') was drilled from thirty-six holes.

Banka Drilling

Four Banka drills were made available to the mining public on a rental basis, during 1992. The drills were rented by both mining companies and individual miners. When available drillers from the Commission were assigned to assist the renters with their drilling programmes.

5.7 Training in Malaria Diagnosis and Treatment

Field staff of the Technical and Inspectorate Department benefitted from a two-day Training Course in Smear Sampling and malaria Diagnosis and Treatment. The training, which was carried out by personnel from the Vector Control Service, was done at their Clinic at the Georgetown Hospital.

5.8 Constraints in (Technical) Staffing

The Mines Department was unable to complete its work programme for 1992, largely because of the depletion of its technical staff. Six out of sixteen sub-professional staff were effectively unavailable for field duties for the most part of the year.

Three Mining Technicians and three Mines Officers pursued full-time studies in the degree and diploma in Mining Engineering at the University of Guyana; two Senior Mines Officers participated in Registration and other duties related to National Elections; one Mines Officer was seconded to the Geological Services Department; three officers - one Senior Mines Officer, one Assistant Mines Officer and one Ranger - were confined to Georgetown pending a Disciplinary Hearing. Senior Mining Engineer G. Howell was on extended leave on absence for the second half of the year.

Incidences of malaria infection and reinfection also constrained the full realisation of the 1992 Work Programme.

Messrs Husbands, Samaroo and Todd completed a three-year scholarship at Paranapanema Mining School in Manaus in Brazil and were appointed Mines Officers. They proceeded to the University of Guyana at the start of the 1992-93 academic year to upgrade their qualifications to the level of the Diploma in Mining Engineering of the University of Guyana.

6. ADMINISTRATIVE DIVISION

The Administrative Division comprises:-

(1) Personnel and Industrial Relations Department - responsible for Personnel functions, the Canteen, Security and Main Registry.

(2) Information and Publication Department - responsible for the Cartographic Section, Library, Printery, Bindery and Photo Laboratory.

(3) Services Department - responsible for the Mechanical Workshop and transport, the Carpentry and Maintenance Workshop and the Radio and Electrical Workshop.

6.1 Personnel and Industrial Relations

The Personnel and Industrial Relations Section was responsible for staff recruitment, salaries and wages administration, the formulation and enforcement of personnel rules and regulations, and training.

The total number of employees at December 31, 1992 was 194. Of these 19 were professional staff - including 5 Geologists, 5 Mining Engineers, 1 Cartographer, 1 Chemist and 1 Attorney-at-Law.

Training

Training of employees to equip them with skills and knowledge to enhance performance and raise the level of the efficiency of the Commission, received priority in 1992. Officers in all Divisions, and at various levels underwent training in several disciplines, including Mining, Geology, Cartography, Chemistry, Accountancy, Management and Occupational Health and Safety. Most of the training was done locally, at or in conjunction with the University of Guyana. There was a small overseas undergraduate training component.

The main emphasis in training was in Mining, Geology and Cartography. GGMC sponsored students, including employees, for the diploma and degree programmes in Mining and the diploma in Geology at the University of Guyana. The Commission sponsored a one-year Advanced Certificate Course in Cartographic Techniques, which was accredited by the University of Guyana. Five of the first batch of seven students graduated in July 1992 - three of the graduating students were employees of GGMC. The Course was restarted in October 1992 for the 1992-93 academic year, with the registration of one GGMC employee and three other students. An elementary Certificate Course in Cartography was run by the Commission in the 1991-92 academic year: out of the four registered students (3 from GGMC), one GGMC employee graduated.

As mentioned earlier on page 14 training programmes were conducted in Geology and Micro-Computing in July and August, for fifth form students - sixteen students participated in the geology course and in the micro computing Course.

A list of employees who participated in training programmes is given in Table 6.(i) below:

Name	Designation	Program of Study	Year of Graduation
	Full-Time		
Colin Sparman	Mining Technician I	BSc Mining Eng.	1993
Eulene Watson	Mining Technician I	BSc Mining Eng.	1993
Rickford Vieira	Mining Technician I	BSc Mining Eng.	1994
Aubrey Sargeant	Mining Technician I	BSc Mining Eng.	1994
Garfield Stuart		Bsc Mining Eng.	1993
Ronald Glasgow		Msc Mining Eng.	1994
Wilberforce Tappin		Bsc Geology	1993
Clyde Thompson	Analytical officer II	BSc Chemistry	1994
Laurell Ferreira	Senior Field Asst	Diploma in Geology	1994
Paul Welch	Sponsored Student	Diploma in Geology	1994
Balwant Arjune	Sponsored Student	Diploma in Geology	1994
Tulladhar Panday	Sponsored Student	Diploma in Geology	1994
Aretha Crawford	Sponsored Student	Diploma in Geology	1994
Rollin Nelson	Sponsored Student	Diploma in Geology	1994
Elton Sampson	Sponsored Student	Diploma in Geology	1994
Julius Griffith	Sponsored Student	Diploma in Geology	1994
Daudi Husbands	Mines Officer	Diploma in Min. Eng	1993
Mahendra Samaroo	Mines Officer	Diploma in Min. Eng.	1993
Carlos Todd	Mines Officer	Diploma in Min. Eng.	1993
Wendell Alleyne	Senior Mines Officer tional Health & Safety	Diploma in Occupa-	1993
June Allen	Secretary to Comm.	BSc Management	1994

Name	Designation	Programme of Study	Year of Graduation
		Part-Time	
Ryan Smith	Asst. Draughtsman I	Adv. Cartography	1993
Ryan Smith	Asst. Draughtsman I	Elementary Cartography and Techniques	1992
Faye Kerr	Draughtsman I	Adv. Cartography	1992
Dawn Budhu	Draughtsman I	Cartography	1992
Terry Moore	Asst. Draughtsman II	Cartography	1992
Leslyn Garnett	Asst. Mngr. (P&IR)	BSc Management	1994
Merlyn Meredith	Assistant Accountant	Diploma in Accountancy	1993
Wendy Gray	Clerk IV (Accounts)	Diploma in Accountancy	1994
Horace Moore	Asst. Purch. Officer	Diploma in Accountancy	1994

Christopher Roberts	Clerk III (Pers.)	Diploma in Personnel & Industrial Relations	1993
Sean Corlette	Clerk II (Stores)	Diploma in Accountancy	1994
Arthur Gibbs	Budget & Purch. Off.	BSc Accountancy	1995
George Scotland	Asst. Internal Auditor	BSc Accountancy	1995
Joselyn Grimmond	Snr. Asst. Draughtsman	BA Geography	1996
Norma Harris	Admin Officer	Post Graduate Studies International Relations	1994
Jan Carter	Clerk IV (Computer)	Cert. in Industrial Relations & Social Studies	1993
Hazel Welch	Clerk III (Personnel)	- do -	1993
Clarence Gaim	Clerk II (Mines)	do -	1993
Sharon Hackett	Clerk II (Mines)	- do -	1993

The Commission sponsored the attendance of 19 senior, middle and junior level staff at short training courses in areas of Time Management, enhancement of Office and Supervisory skills and improvement of Public Image, Office Assistant's duties, Computing.

Bursary Awards

There were two awardees under the Bursary Award scheme for employees' children who performed creditably at the Common Entrance Examination. The 1992 awardees, Donna Hasting and Odessa Kerr, brought the total number of awardees under the Bursary Scheme in 1992 to nine.

Increase in Salaries

The Commission paid a seventy-five percent (75%) increase in Salaries across-the-board in 1992. The increase was paid in two stages, 10% for January to March, and 65% paid in July, made retroactive to January.

Uniforms

In keeping with the Commission's policy, uniforms or uniform allowances were provided to all categories of employees.

Registry

The main Registry was responsible for maintaining the filing system, receiving and despatching mail and typing correspondence. The Personnel Section, and Mines Division maintained Registry sub-units, and applications for Medium Scale Prospecting Permits were filed by the Geological Services Department.

Canteen

The physical appearance of the Canteen was upgraded and a new system of providing free of cost coffee/tea/drink at the Canteen during the morning and afternoon break periods was introduced.

Security

The Security Section operated short of manpower for most of the year, because of difficulty in recruiting Security Guards of the quality needed. Consequently on several occasions, guards were required to work double shifts. Nevertheless, the performance of the Section despite the adverse circumstances, was satisfactory.

6.2 Information and Publication Department

6.2.1 Cartographic Section

During 1992 the Cartographic Section performed several important functions. Of prime importance was the cartographic work related to exploration and mining activities, which occupied two of the three Senior Draughtsmen for approximately 90% of the time, often with the assistance of lower level Draughtsmen.

This work entailed the plotting, description, calculation of acreage and certification of tracts of land for which applications were made for Prospecting Licences, Prospecting Permits and Mining Licences. The greater part of it ensued from the influx of applications for Medium Scale Prospecting Permits. Applications were concentrated in the North West, Cuyuni and Mazaruni Mining Districts: the list below provides an example of some specific locations.

Wariri Creek	Eping River	Red Hill Loop
Oko Mountains	Aremu River	Imotai Creek
Mariaba River	Barama River	Arakaka River
Apaiqua River	White Creek	Meamu River
Chenapau River	Muribang River	Quartzstone River
Mazaruni River	Mazawini River	Jubilee Creek
Puruni River	Kaburi River	Groete Creek
Kowaik Creek	Cuyuni River	Potaro River
Tassawini	Mahdia	
Kumong-Kumong River	Essequibo River	

In addition, maps of the Ayanganna and Imabaimadai Closed Areas, the Aremu, and Puruni State Mining Reserves and the Iwokrama Rainforest 'Reserve' were prepared to show their spatial relationship to prospective and existing mining and prospection/exploration areas.

In May 1992 a 1:500,000 scale map showing all existing Prospecting Licence areas, closed Areas etc. was prepared. Several 1:1,100,000 scale maps showing Prospecting Licence areas were prepared at the request of Mines Officers of the Commission and for sale to the public.

Map Design and Construction

Final draughting of maps was done at the request of the Division of Geological Services. In July, work was started on the Aishalton and Potaro geological sheets. These sheets are part of the new series being re-drawn on scale 1:250,000 in keeping with International Scale Specifications. The Aishalton sheet was completed to proofing stage while the base information for the Potaro sheet was completed as a first draft. A vegetation map of a portion of North West Guyana was also produced to proofing stage.

Work on a series of specially packaged Resource Information and Maps continued during the year. The completed package will consist of written text and maps for Administrative Regions 1, 7, 8, 9 and 10, where most of the gold and diamond mining in Guyana occurs. The package is designed to provide potential investors, local and foreign, with a comprehensive overview of mineral resources, infrastructure, communications, geographic and socio-economic features for the selected regions. Map work completed at the end of 1992 was as follows:

Region	1 -	Barima-Waini	-	Topography, Climate graphs
Region	7 -	Cuyuni-Mazaruni	-	Topography, Geology
Region	8 -	Potaro-Siparuni	-	Topography, Vegetation
Region	10 -	Upper Dem. Berbice	-	Topography, Geology

Data for the written text was collected and processed during September and October by two Geography Graduants of the University of Guyana who were attached to the Cartographic Section to complete their National Service. Mineral Resource information is being compiled by the Information and Documentation Unit of the Library.

Printing

The Plan Printer was fully utilized during the year fulfilling both internal and external requisitions. Table 6(iii) sets out amount of paper utilized and related costs.

Table 6(iii) - Plan Printer Production in 1992

Month	Internal		External	
	Sq. ft.	Cost ($)	Sq. ft.	Cost ($)
January	8	200.00	116	3,300.00
February	48	1,200.00	197	4,725.00
March	90	2,250.00	177	4,750.00
April	610	6,795.00	653.5	15,275.00
May	128	3,300.00	388	11,500.00
June	163	3,975.00	252	6,300.00
July	88	2,200.00	20	500.00
August	400	10,930.00	223	6,155.00
September	362	9,050.00	249	6,512.00
October	84	9,400.00	136	3,400.00
November	315	8,725.00	216	5,500.00
December	320	12,400.00	276	10,535.00
	916	80,425.00	2903	78,425.00*

*The sum of $78,425.00 was paid into the Accounts Section as cash revenue from printing.

Other Cartographic Activities

The Cartographic Section completed several other tasks related to the Commission's activities - preparation of official notices, banners, cards (including immunization cards for the Ministry of Health) and a GGMC calendar for 1993.

The Cartographic staff should be commended for their performance, and the high level of production which they maintained during the year. In order to upgrade skills in cartography, more than 90% of the officers were exposed to training programmes of one academic year duration, conducted in-house. Details have been given at 6.1 under Training.

Library

The Library is the repository of several valuable and rare publications on geology and mining in Guyana. During 1992 the Library served staff of the Commission, the mining public and students.

Ms. Donna McRae was recruited in January as Information and Documentation Officer, with direct responsibility for the Library. Two new projects were introduced into the activities of the Library - production of a Quarterly Publication giving current information on the mining industry in Guyana, called 'Mineral Industry Survey', and the preparation of mineral resource

information to form part of a comprehensive package of information and maps for potential investors in the mining industry. In 1992, three issues of the Mineral Industry Survey were produced for the first three calendar quarters. The response to the Mineral Industry Survey has been very favourable - it is circulated free of cost to Government officials, Mining Companies and organisations, and Libraries, including geological libraries overseas. A computer was installed in the Library to facilitate the publication of the quarterly publication, to computerise and manage the list and Catalogue of Books, Maps and publications, and for general application.

The physical facilities of the Library were extended as part of a programme to upgrade its service. The building was extended, additional dexion shelving was assembled, user-seating capacity doubled, box files totally renewed and several important new textbooks in geology, mining and mineral processing were purchased. The Library is very important to students of the Mining and Geology diploma and degree programmes of the University of Guyana, many of whom are sponsored by the Commission. In support of these programmes the Commission offers its library facilities to the staff of the University of Guyana. Maintenance of books, reports, journals, periodicals was done on an ongoing basis.

Table 6(iv) Summary of statistics related to the operation of the Library in 1992
Library Statistics

Clientele Served	-	708
Books loaned	-	484
Sales		$
Local	-	$121,967
Overseas	-	40,465
Photocopying		
Cash Receipt (external)	-	$110,188
Internal	-	13,774

New Publications Accessioned	-	108
Sales		
Reports		52
Maps		
Aeromagnetic		128
Mineral 1:1,000,000		115
Geological 1:1,000,000		70
Electromagnetic		37
Quarter Degree		33
Drainage Pattern		13
Residual Magnetic		5
Topographic		4
Others		4
		409

6.3 Services Department

Carpentry and Maintenance Workshop

The Carpentry and Maintenance Workshop was responsible for the upkeep of the buildings and for the maintenance of the compound, constructing furniture and other furnishings for offices. The majority of the work done during 1992 related to the construction and repair of furniture to improve facilities for staff. Funds were budgeted in 1992 for commencement of the buildings expansion plan to alleviate the acute shortage of office space. Architectural Plans were submitted by George Henry Associates Architect and discussions were held between officials of the firm and the Commission. The building plans were not finalised.

Mechanical Workshop and Transport

The Mechanical Workshop was responsible for servicing and effecting repairs to ten of the Commission's fourteen vehicles. Four Nissan vehicles were serviced and repaired by Transport Services Limited, a branch of AINLIM, from whom they were purchased.

Four new vehicles comprising one (4x2) Cab Pickup, one Mini-bus, and two motor cars were purchased during the year. The operating fleet comprised six motor-cars, one Land Cruiser, two Bedford Trucks, two Toyoto-Hiace Mini-buses, one Nissan 26-seater bus, and two Toyoto (4x2) Cab Pickups. These provided all the transportation needs of the Commission during 1992.

Field trips to Aishalton, Issano, Waraputa, Ya-Ya, Bartica, Mabura, Ituni, Aroaima, Suribana and Tumatumari were made by the trucks, Pickups and Land Cruiser. Pickup GDD 597 was involved in an accident early in the year and was out of service for the major part of the year.

The Commission, as an incentive to employees, provided transportation to and from work for employees who resided on the East Coast of Demerara and on the West Coast and West Bank of Demerara.

Drivers assigned these duties were required to begin work very early in the morning to ensure that employees arrived at work on time, and were reliable in carrying out their duties. Those drivers are to be commended for their high sense of responsibility and dedication to work.

Radio and Electronic Workshop

The Radio and Electronic Workshop was responsible for the maintenance of the electrical system throughout the compound and the radio communication system between Head Office and field locations. During 1992, repairs were done to the wiring system controlling the Field Section and the Commissioner's Office, and routine repairs and maintenance were carried out.

7. ATTENDANCE AT INTERNATIONAL CONFERENCES/COURSES

Commissioner (ag) Mr. W. Woolford, and Kampta Persaud - Manager (ag) Geological Services attended the Inaugural International Mining Conference 'Investing in the Americas' in Miami, from April 21 to 24. The conference on Latin America's Mining Industry brought together the mining and investment community of the Americas. South America was promoted South America as being very attractive for mining investment. Guyana was included in the list of South American countries favoured for investment in gold mining. Former President, Desmond Hoyte, presented a Country paper on Mining opportunities in Guyana, and Golden Star Resources' President Dave Fennel discussed his Company's experience in Guyana - from exploration through Mine Development. Topics covered at the Conference included "Latin America's Mining Industry: Global Perspective"; and "Structuring Mineral Option and Joint Venture Agreements".

Geologist Sherwood Lowe attended a course on Gold deposit modelling (Brazil 1992) held in Brazil on October 30 to November 10. Gold deposit styles in Archean greenstone belts were studied in a programme which included field visits to mines based on deposits in Archean greenstone. The course was sponsored by International Union of Geological Sciences (IUGS) and UNESCO.

8. LAPIDARY WORKSHOP

The Lapidary Workshop continued its operations in 1992 utilising in-hand stocks of semi-precious stones, jasper, agate, amethyst, rose quartz, green quartz to manufacture cabochons and artifacts. Most of the manufactures were in fulfillment of orders from tourists.

Sales in 1992 amounted to $122,000, a 25% increase over 1991 sales.

9. FINANCE DIVISION

The Commission recorded a surplus of $64,000 million before depreciation. Against a budgeted figure of $99,322,000 this gives unfavourable variance of $35,310,000.

9.1 Income

The Commission's Receipts for 1992 totalled $242,906,000, which, when compared with the budgeted figure of $282,996,000 gave an unfavourable variance of $40,091,000. Income for 1992 was 85.83% of the budgeted sum.

Income to December 31, 1992 - shown below.

Table 7(i) GGMC Income received for 1992

	Actual	% of Actual Income	Budgeted	Variance	% Increase over 1991
		$	$	$ %	
Fines, Fees etc.	16,473,000	6.78	27,730,000	(11,257,000)	31
Licences	13,710,000	5.64	7,953,000	5,757,000	129
Royalties	168,942,000	69.55	194,306,000	(25,364,000)	37
Leases and Concessions	25,718,000	10.59	41,227,000	(15,509,000)	16
Drilling	2,402,000	0.99	10,840,000	(8,458,000)	144
Lapidary	122,000	0.05	--	122,000	26
Canteen Sales	867,000	0.36	780,000	87,000	-6
Others	14,672,000	6.04	139,000	14,534,000	625
	242,905,000	100.00	82,996,000	(40,090,000)	45%

The Commission's income averaged $20,242,000 per month over the period January to December 1992.

9.2 Expenses, contribution to Central Government

The total expenses for 1992 was $178,928,000, which when compared with the budgeted figure of $183,674,000 gave a favourable variance of $4,746,000.

Table 9(ii)

Expenses to December 31, 1992

	Actual	Budgeted Actual	Variance	% of total expenses	% Increase over 1991
	$	$	$		%
Employment Cost	53,501,000	88,144,000	34,643,000	29.90	96
Ration	4,519,000	26,769,000	22,250,000	2.53	166
Materials and Supplies	6,632,000	18,399,000	11,767,000	3.71	409
Fuel and Lubricants	4,122,000	12,106,000	7,984,000	2.30	26
Transportation	5,935,000	7,578,000	1,642,000	3.31	351
Maintenance & Repairs	8,476,000	4,242,000	(4,234,000)	4.73	167
D.S.C./Public Relation	108,000	1,140,000	1,032,000	0.06	108,000
Compensation for Geological Surveys Assets	75,000,000	--	(75,000,000)	41.92	50
Research & Dev.	9,000	600,000	591,000	0.005	9000
Mineral Processing	814,000	1,347,000	533,000	0.46	53
Lapidary	1,713,000	1,720,000	7,000	0.96	197

Actual	Budgeted	Variance	% of total Actual	% Increase	expenses	over 1991
		$	$	$		%
Off Services & Suppl.		8,817,000	2,951,000	(5,866,000)	4.93	289
Others		9,247,000	18,678,000	(9,431,000)	5.17	52
		$178,893,000	183,674,000	4,781,000	100.00	83%
Surplus/(Deficit) before Depreciation		$64,012,000	$99,322,000	(35,300,000)	-	8%

Contribution to Central Government

(a) The following amounts were paid over to the Central Government for the year 1992.

P.A.Y.E.	$5,051,771.23
N.I.S.	$1,762,840.93
	$6,814,612.16
Arawai Road Project (Emergency Repairs)	3,800,000.00
Total -	**$10,614,612.16**

(b) The Commission's Board of Directors approved of the sum of $75 million to be paid into the Consolidated Fund. This amount represents compensation for the assets of the Geological Surveys and Mines Department. The remittances were made in three instalments to December 31, 1992.

9.3 **Creditors, Debtors**

The Commission's accounts showed creditor balances at December 31, 1992 as $2,63 million which is comprised of refundable deposits and Sundry Creditors.

The Debtor balances recorded in the Commission's debtors Ledger at December 31, 1992 totaled $4,244,000 and of this amount $238,000, was with the Expediters.

The Debtor balances were aged as follows:-

3 months & under	Over 3 mths under 6 mths	and Over 6 mths under 9 mths	and Over 9 mths under 12 mths	and Over 12 months	Total
$	$	$	$	$	$
1,784,000	1,106,000	696,000	244,000	415,000	4,244,000

Receivables at December 31, 1992 were $2,150,000.

9.4 **Cash Position, investments, Accrued Interest earned**

The reconciled balance in the Commission's Cash Book at December 31, 1992 was $50,788,000 while the cash in the Bank was shown as $25,881,006. The relevant adjustments were due to be made to the Commission's Book.

The Commission invested a total of $112,898,000 in short-term securities at the Guyana National Co-operative Bank and the National Bank of Industry and Commerce. During the year M$11 of these securities were retired to augment the Commission's assets. Defence Bonds to the value of $100,000 were also held at the end of the year.

The Commission earned accrued interest in the sum of $44.32 million at December 1992.

9.5 **Assets and Stocks**

Acquisition of Fixed Assets

Capital Items purchased by the Commission during 1992 were substantial. Major capital items purchased are listed in Table 9(iii) below:

(a)	Four Nissan vehicles were purchased to increase the Commission's fleet of vehicles.	
	(i) 1-(4x2) Cab Pickup	$1,572,075
	(ii) 1 Mini Bus	3,831,569
	(iii) 2 Motor cars - consumption and Purchase Tax -	2,476,497
(b)	One 10-Channel Radio set	509,466
(c)	3-Petrological Microscopes and a photomicrogramic system for the Petrological Lab.	3,397,503
(d)	One Generator and Engine for use on the Imbaimadai project	265,750
(e)	Installation of additional phones and programming of the Telephone System/Intercom	1,157,230
	Total -	**$13,210,290**

Assets Register

The value of the Commission's assets could not be verified at December 31, 1992 with any accuracy because of the inadequacy of the information available. A proper accounting record in the form of an accurate Asset register was not available, and it was discovered that certain assets were totally depreciated and others were not accounted for in the Commission's books of account.

9.6 **Stock Valuation**

Stock values at December 31, 1992 could not be ascertained because there was no adequate inventory system from which the relevant stock values could have been obtained.

Stores, Purchasing

The stores serviced nine Mining Stations, five Geological Projects and one Drilling project during 1992 and ensured that fourteen despatches worth at least $15 million were securely packed and sent out.

The staff of this Section though small in number performed admirably and satisfied the numerous requests made by the Commission. The staff handled in excess of $15 million.

Appendix 1

Appointments and Promotions

Name	Designation	Date of Appointment	Remarks
William Woolford	Deputy Commissioner	1992-01-01	Promotion
Lenise Fredericks	Cartographer	1992-09-01	New appointment
Diane Skeete	Mineral Processing Eng. I	1992-01-06	Promotion
Rosemary Benjamin	Legal Officer	1992-03-18	New appointment
Ted Semple	Snr. Data Management Off.	1992-06-01	Redesignation
Sandrene Smith	Senior Chemist I	1992-11-01	Promotion
Donna McRae	Information and Documentation Officer	1992-01-06	New appointment
Abraham Baird	Senior Accountant	1992-12-01	Promotion
Gordon Nestor	Geologist	1992-11-09	New appointment
Norma Harris	Admin Officer	1992-12-15	Promotion
Leroy Fredericks	Surveyor	1992-04-01	Promotion
Gloria McFarlene	Admin. Assistant (Geol.)	1992-06-01	Promotion
Rickford Vieira	Mining Technician I	1992-09-01	Promotion
Arthur Gibbs	Budgeting and Purchase Off.	1992-12-01	Promotion
Maylene King	Chief Clerk (Registry)	1992-06-01	Promotion
Carlos Todd	Mines Officer	1992-06-22	New appointment
David Husbands	Mines Officer	1992-09-15	New appointment
Mahendra Samaroo	Mines Officer	1992-09-15	New appointment
Dennis Jonas	Tradesman I	1992-03-16	New appointment
Beverley Taylor	Confidential Secretary I	1992-10-01	Promotion
Juliet Chapwanya	Confidential Secretary I	1992-10-01	New appointment
Neville Bourne	Senior Ranger	1992-04-20	Supernumerary Appointment
Cecil Pollard	Driver/Mechanic	1992-10-01	New appointment
Glennis Scott	Typist Clerk II	1992-10-01	New appointment
Montague Mingo	Driver	1992-01-14	Promotion
Ernest Dunlop	Laboratory Assistant	1992-04-01	New appointment
Sharon Hackett	Clerk I	1992-04-06	New appointment
Wyron Braithwaite	Asst Printing Press Operator	1992-05-18	Promotion
Trevor Hicks	Laboratory Assistant	1992-10-06	New appointment
John Paul Serieux	Temporary Driver	1992-09-03	New appointment
Cecil Haynes	Security Guard I	1992-11-02	New appointment
Shondell Bobb	Office Assistant	1992-01-21	New appointment
Colin Braithwaite	Office Assistant	1992-04-01	New appointment
Kojo Fowler	Stores Porter	1992-09-14	New appointment

Appendix 2

Terminations

Names	Designation	Date of Termination	Remarks
Brian Alves	Expediter	1992-02-01	Dismissal
Roy Austin	Driller	1992-06-01	Resignation
Asheek Alli	Lapidary Supervisor	1992-10-12	Resignation
David Farnum	Asst Draughtsman	1992-04-01	Resignation
Gale France	Assistant Accountant	1992-08-01	Resignation
Maurice Halley	Electrician	1992-04-	Death
Tyrone Hemraj	Maintenance Asst	1992-07-01	Resignation
Anita Hossanah	Analytical Officer I	1992-04-01	Resignation
Colin James	Office Assistant	1992-08-01	Resignation
Carlton Joseph	Security Guard	1992-03-01	Resignation
Debbie Lopes	Telephonist	1992-02-10	Dismissal
Vibert Milling	Driver	1992-06-29	Dismissal
Louis Moe	Photo Lithographer	1992-08-01	Resignation
Mata Persaud	Asst Mines Officer	1992-08-01	Resignation
Earl Roberts	Tradesman I	1992-02-01	Resignation
Michael Rutherford	Asst Draughtsman	1992-08-01	Resignation
Karen Smith	Clerk II (Accounts)	1992-05-11	Resignation
Allison Vieira	Personnel Officer	1992-05-01	Resignation

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Republic Of Guyana

Office of the Auditor General
P.O. Box 1002
Georgetown, Guyana

AG:73/96

28 June, 1996

**REPORT OF THE AUDITOR GENERAL
TO THE MINISTER
ON THE FINANCIAL STATEMENTS OF
THE GUYANA GEOLOGY AND MINES COMMISSION
FOR THE YEAR ENDED 31 DECEMBER 1992**

I have audited the financial statements of the Guyana Geology and Mines Commission for the year ended 31 December 1992, as set out on pages 1 to 14, which have been prepared under the historical cost convention as modified by the revaluation of certain fixed assets and the accounting policies as set out on page 3.

Respective Responsibilities of Management and Auditors

Management is responsible for the preparation of the financial statements. It is my responsibility to form an independent opinion, based on my audit, on those statements and to report my opinion to you.

Basis of Opinion.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures on the financial statements. An audit also includes assessing the accounting principles used and the significant estimates made by Management as well as evaluating the overall financial statement presentation. I believe that my audit provides a reasonable basis for my opinion.

Disclaimer of Opinion Resulting from Insufficient Information.

As explained in Note 11, fixed assets have been stated in the accounts at a total cost or valuation of $40,204,709. No physical verification to determine the existence and condition of these assets was ever done. As a result, the completeness, accuracy and validity of this balance of $40,204,709 could not be satisfactorily ascertained.

No stock count was carried out at 31 December 1992 and there were no practicable auditing procedures that could have been applied to confirm quantities and values. Further, adequate accounting records in relation to inventories have not been kept. Accordingly, the information and explanations necessary to verify the existence and valuation of inventories stated at $2,254,485 in the balance sheet at 31 December 1992, were not obtained.

Several pages in the sundry debtors control account were missing. In addition, no provision was made for bad debts. As a result, the completeness, accuracy and validity of the balance of $17,988,061 stated as sundry debtors could not be determined.

The completeness, accuracy and validity of the amount of $3,162,491 stated as sundry creditors could not be determined since several pages in the general ledger sundry creditors control account were missing.

Details of Gaibank Line of Credit were not provided for audit, and there were no practicable alternative audit procedures that could have been applied. As a result, the accuracy and validity of the amount of $818,515 stated as Gaibank Line of Credit at 31 December 1992 could not be satisfactorily verified.

Because of the significance of the matters referred to in the preceding paragraphs, I am unable to form an opinion whether the financial statements present fairly, in all material respects, the state of the Commission's affairs as at 31 December 1992 and the results of its operations for the year then ended.

S. ARGHOLSAR
AUDITOR GENERAL

OFFICE OF THE AUDITOR GENERAL
63, HIGH STREET
KINGSTON
GEORGETOWN
GUYANA

FINANCIAL STATEMENT 1992

GUYANA GEOLOGY AND MINES COMMISSION
STATEMENT OF INCOME AND EXPENDITURE
FOR THE YEAR ENDED 31 DECEMBER, 1992

INCOME	NOTES	1992 G$	1992 G$	1991 G$	1991 G$
ROYALTIES	2	164,984,333		121,105,046	
LICENCES	3	6,261,456		5,985,508	
FEES, FINES ETC	4	15,775,921		12,314,265	
CONCESSIONS	5	25,845,526		17,339,253	
OTHERS	6	33,503,029		32,619,629	
			246,370,265		189,363,701
EXPENDITURE:					
EMPLOYMENT COS	7	53,681,489		27,212,759	
ADMINISTRATION	8	50,258,423		23,925,031	
TRAVELLING AND TRANSPORT	9	7,760,454		4,167,098	
DEPRECIATION		5,357,384		2,381,000	
			117,057,750		57,685,888
SURPLUS/(DEFICIT):			129,312,515		131,677,813
APPROPRIATION TO CONSOLIDATED FU	10		75,000,000		50,000,000
RETAINED SURPLUS/(DEFICIT)			54,312,515		81,677,813

STATEMENT OF ACCUMULATED SURPLUS (DEFICIT)

BAL. AT BEGINNING OF YEAR	165,900,159	84,222,346
RETAINED SURPLUS/(DEFICIT) FOR THE YEAR:	54,312,515	81,677,813
BAL. AT END OF YEAR	220,212,674	165,900,159

GUYANA GEOLOGY AND MINES COMMISSION

BALANCE SHEET AS AT 31 DECEMBER, 1992

	NOTES	G$	1992 G$	G$	1991 G$
FIXED ASSETS	11		27,834,951		18,914,777
CURRENT ASSETS:					
INVENTORIES	12	2,254,485		1,991,263	
SUNDRY DEBTORS	13	17,988,061		25,820,610	
CASH ON HAND AND IN BANK	14	20,918,181		17,207,511	
SHORT TERM INVESTMENT	15	161,979,154		110,151,212	
LORING LAB. INVESTMENT		0		8,505	
		203,139,881		155,179,101	
CURRENT LIABILITIES:					
SUNDRY CREDITORS	16	3,162,491		1,755,052	
DEFERRED INCOME		2,266,322		265,653	
ACCRUED EXPENSE	17	678,999		567,552	
SUSPENSE ACCOUNT		517,748		425,740	
		6,625,560		3,013,997	
NET CURRENT ASSETS:			196,514,321		152,165,104
			224,349,272		171,079,881
FINANCED BY:					
GOVT. OF GUYANA CAPITAL	18		2,374,825		2,374,825
CAPITAL RESERVE			943,258		943,258
ACCUMULATED S/P	19		220,212,674		165,900,159
SHAREHOLDERS' FUNDS			223,530,757		169,218,242
GAIBANK LINE OF CREDIT			818,515		1,861,639
			224,349,272		171,079,881

COMMISSIONER

CHAIRMAN

GUYANA GEOLOGY AND MINES COMMISSION

NOTES ON THE ACCOUNTS

1. ACCOUNTING POLICIES

ACCOUNTING CONVENTION

(a) The accounts have been prepared under the histc 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 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.

NOTE 2 - ROYALTIES - $164,984,333

ROYALTIES:	-	GOLD	157,448,350
	-	BAUXITE	302,477
	-	PRECIOUS STONES	6,717,099
	-	STONES	66,302
	-	SAND	450,105
			164,984,333

NOTE 3 - LICENCES - $6,261,456

LICENCES	-	OIL EXPLORATION	0
	-	PROSPECTING	155,183
	-	TRADING	2,355,000
	-	CLAIMS - P/STONES	142,565
	-	CLAIMS GOLD	218,445
	-	RIVER LOCATIONS	577,340
	-	GOLDSMITH	190,500
	-	DUPLICATE LICENCES	38
	-	DREDGE LICENCES	2,525,960
	-	MINING PRIVILEGES	96,425
			6,261,456

NOTE 4 - FEES FINES ETC - $15,775,921

801	FEES	162,994
802	FORFEITURES	0
803	TRIBUTES	15,392,351
804	APP. FOR DREDGES	55,200
805	REGISTRATION FEES	28,532
806	TRAN. OF DREDGES	5,170
836	DUTY ON TRANSFERS	131,674
		15,775,921

NOTE 5 - CONCESSIONS - $25,845,526

827	-	MINING CONCESSIONS	671,080
829	-	CON. DREDGING	326,600
830	-	CON. DUPLICATE	0
831	-	MINING LEASES	5,035
832	-	EXCL. PERMISSION	24,842,811
			25,845,526

NOTE 6 - OTHERS - $33,503,029

825	RENTS HOUSING	0
826	MINING EQUIPMENT	320,000
828	PROFESSIONAL SERVICES	0
834	REGISTRATION CERTIFICATE	1,001
838	INTEREST ON INVESTMENT	27,209,448
847	SALE OF LAPIDARY PRODUCT	122,193
837(b)	SALE OF OFFICIAL PUBLICATION	365,491
839	DISPOSAL OF ASSETS	0
871	DRILLING	2,401,890
873	CANTEEN SALES	867,373
874	SURCHARGE	0
840(b)	VERIFICATION OF CLAIMS	1,308,882
878	GAIN ON FOREIGN EXCHANGE	566,845
877	MINING CONTRACTS	0
		33,163,123
835	MISCELLANEOUS	339,906
		33,503,029

NOTE 7 - EMPLOYMENT COSTS - $53,681,489

701	-	SALARIES	35,324,445
702	-	WAGES	1,223,370
703(a)	-	SALARIES OVERTIME	2,398,243
703(b)	-	COMMUTED OVERTIME	0
704	-	WAGES OVERTIME	1,060,180
705	-	STATION/BUSH ALLOWANCE	430,168
706	-	HOUSE ALLOWANCE	0
707	-	DUTY ALLOWANCE	0
708	-	SUBSISTENCE & TRAVELLING	1,325,465
709	-	RISK ALLOWANCE	34,606
710	-	CASH IN LIEU OF LEAVE	1,190,481
711	-	TRAVELLING ALLOWANCE	150,687
712	-	ENTERTAINMENT ALLOWANCE	258,724
714	-	PENSION SCHEME(EMPLOYERS CONTRIBUTION)	2,625,110
715	-	N.I.S. EMPLOYERS CONTRIBUTION	1,146,992
716	-	DIRECTORS EMOLUMENT	180,000
717	-	LEAVE PASSAGE	3,039,630
718	-	RESPONSIBLITY ALLOWANCE	92,311
719	-	ACTING ALLOWANCE	501,326
720	-	UNIFORM & SAFETY GEARS	1,387,903
721	-	TRAINING AND EDUCATION	974,018
724	-	PERSONAL ALLOWANCE	218,738
771	-	GRATUITY AND SEVERANCE PAY	119,092
			53,681,489

NOTE 8 - ADMIN EXPENSES - $50,258,423

514	-	LOOSE TOOLS & SUNDRY EQUIPMENT	447,631
722	-	LUNCH & SNACKS	1,669,258
726	-	FUEL LUBRICANTS - VEHICLES ETC.	4,177,256
727	-	MAINTENANCE OF RADIO & COMM. EQUIP.	78,225
728	-	MAINTENANCE OF ELECTRICAL EQUIP.	442,608
729	-	MAINTENANCE OF VEHICLES	2,525,173
730	-	MAINTENANCE OF CRAFT, EQUIPMENT	545,802
733	-	TELEPHONE, TELEX, CABLES	218,839
734	-	ELECTRICITY	1,039,775
735	-	RENTAL OF OFFICE EQUIPMENT	11,200
736	-	MAINTENANCE OF OFFICE EQUIPMENT	359,014
737	-	PRINTING & DUPLICATING	605,323
738	-	MATERIALS & SUPPLIES - DRAWING OFFICE	715,875
739	-	PROFESSIONAL&CONSULTANCY SERVICES	1,134,609
740	-	AUDIT FEES	100,000
741	-	OFFICE STATIONERY	2,810,209
742	-	OFFICIAL PUBLICATION & NOTICES	5,751,078
743	-	POSTAGE	8,959
745	-	MAINTENANCE & REPAIRS TO BUILDINGS	2,647,553
746	-	MAINTENANCE OF GROUNDS	2,207,737
747	-	JANITORIAL & CLEANING	348,416
748	-	CUSTODIAL SERVICE	109,262
749	-	LEASES	110,100
751	-	BURSARIES	26,150
752	-	NATIONAL EVENTS	27,298
753	-	COMPENSATION TO MINERS	301,880
754	-	DRUGS & MEDICAL SUPPLIES	523,742
755	-	ASSAY LABORATORY SUPPLIES	0
756	-	CHEMICAL LABORATORY SUPPLIES	21,912
758	-	PETROLOGICAL LABORATORY SUPPLIES	1,112
759	-	INSURANCE OF ASSETS	59,283
760	-	BANK CHARGES	139,449
763	-	RATION	4,574,192
764	-	MISCELLANEOUS - OTHER EXPENSES	2,638,480
767	-	ADVERTISEMENT	277,773
769	-	DONATIONS - GIFTS, WREATHS, ETC.	144,854

770	-	MISCELLANEOUS	2,227,926
773	-	EXHIBITIONS & SALES	0
774	-	ENTERTAINMENT EXPENSE	797,794
776	-	STORAGE	341
777	-	CUSTOMS & EXCISE	134,485
778	-	FREIGHT & HANDLING CHARGES	171,827
779	-	LEGAL EXPENSES	103,430
782	-	WELFARE & SUNDRIES	1,089,670
783	-	REVENUE STAMPS	12,898
785	-	DEVELOPMENT SUPPORT & COMMUNICATION	108,000
786	-	MATERIAL & SUPPLIES - COMPUTER	3,452,097
787	-	MAINTENANCE OF COMPUTER	313,617
789	-	RESEARCH & DEVELOPMENT	9,000
791	-	LOSS ON FOREIGN EXCHANGE	6,388
792	-	SUBSIDIES	1,140,000
793	-	SPORTS CLUB	6,160
794	-	ANNIVERSARY CELEBRATION	17,006
795	-	WITHOLDING TAX	3,867,757
			50,258,423

NOTE 9 - TRANSPORT AND TRAVELLING - $7,760,454

718	-	OVERSEAS CONFERENCE & VISITS	879,705
722	-	ROAD AIR AND OTHER TRANSPORTATION	5,752,861
732	-	HIRE OF EQUIPMENT	1,127,888
			7,760,454

NOTE 10 - CONSOLIDATED FUND - $75,000,000

This amount represents a payment to the
Consolidatd Fund.

NOTE 11 - FIXED ASSETS

	LAND & BLDGS.	MOTOR VEHICLES	OFF. FUR. FIX. AND FITTINGS	SCIENTIFIC FIELD AND MINING E/MENT	TOTAL
COST/VALUATION	G$	G$	G$	G$	G$
At 1 January, 1992	2,345,458	9,296,898	3,167,564	11,117,231	25,927,151
Additions in 1992	96,145	11,792,483	2,372,430	16,500	14,277,558
Disposals	0	0	0	0	0
At 31 December, 199	2,441,603	21,089,381	5,539,994	11,133,731	40,204,709
DEPRECIATION:					
At 1 January, 1992	237,381	2,363,680	1,000,927	3,410,385	7,012,373
Charged for the year	37,961	4,149,357	302,856	867,210	5,357,384
Written back on dispc	0	0	0	0	0
At 31 December, 199	275,342	6,513,037	1,303,783	4,277,595	12,369,757
NET BOOK VALUES:					
At 31 December, 199	2,166,261	14,576,344	4,236,211	6,856,136	27,834,952
At 31 December, 199	2,108,076	6,933,218	2,166,637	7,706,846	18,914,777

NOTE 12 - INVENTORIES - $2,254,485

608	-	STOCK OF GOLD	1,018
609	-	STOCK OF DIAMONDS	0
611	-	STOCK - STORES LUMBER etc.	2,253,467
			2,254,485

NOTE 13 - SUNDRY DEBTORS - $17,988,061

601	-	SUNDRY DEBTORS CONTROL	18,366,299
602	-	DEPOSITS LODGED	2,880
613(b)	-	PREPAYMENTS	29,238
613(a)	-	ACCOUNTS RECEIVABLE	(410,356)
			17,988,061

NOTE 14 - CASH ON HAND AND BANK - $20,918,181

604	CASH IN HAND	0
605	BANK BALANCE (CASH)	20,710,168
606	PETTY CASH IMPREST	(16,394)
607(a)	SUB IMPREST A/C 212006199	8,378
	SUB IMPREST A/C 212007000	30,299
	SUB IMPREST A/C 212007001	6,263
	SUB IMPREST A/C 212005758	29,475
	SUB IMPREST A/C 203005024	29,585
	SUB IMPREST A/C 212006198	29,455
	SUB IMPREST A/C 212007044	29,172
	SUB IMPREST A/C 212007002	10,416
607(b)	STAMP IMPREST	(428)
607(c)	STAMP IMPREST (CASHIER)	1,631
607(d)	ICE IMPREST	(6,691)
614	CANTEEN IMPREST	100
615	IDRC BANK ACCOUNT	0
620	HINTERLAND RD. PROJECT	56,752
		20,918,181

NOTE 15 - SHORT TERM INVESTMENT - $161,979,154

	$	$
OPENING BALANCE		110,151,212
NEW INVESTMENTS		
FIXED DEPOSIT CERTIFICATE NO.	7,091,983	
FIXED DEPOSIT CERTIFICATE NO.	3,045,120	
FIXED DEPOSIT CERTIFICATE NO.	1,415,200	
FIXED DEPOSIT CERTIFICATE NO.	241,524	
FIXED DEPOSIT CERTIFICATE NO.	3,812,049	
FIXED DEPOSIT CERTIFICATE NO.	4,304,899	
FIXED DEPOSIT CERTIFICATE NO.	15,000,000	
		34,910,775
		145,061,987
RETIREMENT OF FIXED DEPOSIT C		
NO. 100326 D.D. 90.11.21		5,000,000
		140,061,987

REINVESTMENT OF PRINCIPAL & INTEREST ON FIXED DEPOSIT ACCTS:

	$
FIXED DEPOSIT CERTIFICATE NO. 92908 D.D. 89.	483,929
FIXED DEPOSIT CERTIFICATE NO. 92909 D.D. 89.	479,599
FIXED DEPOSIT CERTIFICATE NO. 92910 D.D. 89.	479,916
FIXED DEPOSIT CERTIFICATE NO. 92911 D.D. 89.	479,916
FIXED DEPOSIT CERTIFICATE NO. 92912 D.D. 89.	143,975
FIXED DEPOSIT CERTIFICATE NO. 93181 D.D. 89.	419,129
FIXED DEPOSIT CERTIFICATE NO. 93182 D.D. 89.	419,129
FIXED DEPOSIT CERTIFICATE NO. 93183 D.D. 89.	383,183
FIXED DEPOSIT CERTIFICATE NO. 100001 D.D. 9(	566,944
FIXED DEPOSIT CERTIFICATE NO. 100002 D.D. 9(	566,944
FIXED DEPOSIT CERTIFICATE NO. 100003 D.D. 9(	283,042
FIXED DEPOSIT CERTIFICATE NO. 100004 D.D. 9(	283,472
FIXED DEPOSIT CERTIFICATE NO. 100073 D.D. 9(	301,957
FIXED DEPOSIT CERTIFICATE NO. 100074 D.D. 9(	540,712
FIXED DEPOSIT CERTIFICATE NO. 100075 D.D. 9(	582,648
FIXED DEPOSIT CERTIFICATE NO. 113798 D. D. 9:	631,465
FIXED DEPOSIT CERTIFICATE NO. 113583 D.D. 9:	632,121
FIXED DEPOSIT CERTIFICATE NO. 113511 D.D. 9'	1,551,367
FIXED DEPOSIT CERTIFICATE NO. 95616 D.D. 91.	3,823,633
FIXED DEPOSIT CERTIFICATE NO. 113787 D.D. 9:	629,957
FIXED DEPOSIT CERTIFICATE NO. 100849 D.D. 9'	5,003,746
FIXED DEPOSIT CERTIFICATE NO. 139602 D.D. 9:	1,811,239
FIXED DEPOSIT CERTIFICATE NO. 113727 D.D. 9:	39,510
FIXED DEPOSIT CERTIFICATE NO. 019233 D.D. 9(	535,198
FIXED DEPOSIT CERTIFICATE NO. 100516 D.D. 9'	581,683
FIXED DEPOSIT CERTIFICATE NO. 113905 D.D. 9:	262,753
	21,917,167
	161,979,154

NOTE 16 - SUNDRY CREDITORS - $3,162,491

401(a)	-	SUNDRY CREDITORS CONTROL	1,009,170
401(b)	-	PROVISION FOR AUDITING	948,336
432	-	REFUNDABLE DEPOSIT	1,204,985
			3,162,491

NOTE 17 - ACCRUED EXPENSES - $678,999

402	-	ACCRUED SALARIES	(84,943)
403		ACCRUED WAGES	(2,630)
404	-	OTHER ACCRUED EXPENSES	405,209
405(b)	-	PAYE	256,601
405(a)	-	N.D.S.	(7,987)
406(a)	-	SALARIES PAYABLE	(777,998)
407	-	N.I.S PAYABLE	213,788
408		WAGES PAYABLE	3,748
409	-	LIFE INSURANCE	3,350
410(a)	-	DEPENDANTS FUND PAYABLE	8,050
410(b)	-	DEPENDANTS FUND MORTGAGE	(413)
411	-	PENSION FUND PAYABLE	(70,708)
412	-	UNION DUES	2,990
413	-	P.S.U. CREDIT UNION	(8,437)
414	-	RENT DUE AND PAYABLE	397
416	-	MORTGAGE FINANCE PAYABLE	825
417	-	LEAVE PASSAGE PAYABLE	287,710
418	-	FIELD ALLOWANCE PAYABLE	180
419	-	MISCELLANEOUS	56,320
420	-	GNCB TRUST MORTGAGE	1,534
421	-	ACTING ALLOWANCE	0
423	-	RISK ALLOWANCE	948
424	-	ACCRUED LEAVE PASSAGE	(120,808)
425	-	DUTY ALLOWANCE PAYABLE	0
426	-	RESPONSIBLE ALLOWANCE	0
427	-	SUB. & TRAVELLING	40,877
428	-	HOUSE ALLOWANCE	(1,798)
429	-	PERSONAL ALLOWANCE	274,196
430	-	SPORTS CLUB	1,298
431(a)	-	D.I.A. PAYABLE	(8,825)
431(b)	-	H.I.A. PAYABLE	800
433	-	WITHOLDING TAX	204,725
			678,999

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

This is comprised as follows:-

	1984	1983
Assets less liabilities at 1/8/79	2,139,306	2,139,306
Other expenditure	235,519	235,519
	2,374,825	2,374,825

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.

NOTE 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.