

CHAPTER 9

SUGAR

9.1 BASIC FEATURES

9.1.1 Guyana's sugar is produced by a state-owned enterprise, the Guyana Sugar Corporation (GUYSUCO). Although a parastatal, the corporation has been managed since 1990, under a management contract, by a privately owned British Company, Booker–Tate.

9.1.2 The company's mission statement reads as follows: "To establish world-class standards in agricultural practices, sugar factory efficiencies, environmental protection and the productive use of human resources – in order to achieve sustained profitability in any foreseeable marketing environment – so that the sugar industry can make a full contribution to the economic, technological and social progress of Guyana."

9.1.3 The sugar sector, which is export-oriented, contributes immensely to Guyana's socio-economic development: 16 percent of the country's total GDP and 30 percent of its agricultural GDP are derived from this commodity; it is the largest *net* earner of foreign exchange in the country; and it is the biggest corporate contributor to public revenue. Moreover, it directly employs 25,000 people or about 10 percent of Guyana's labour force; indirectly, it absorbs a further 10 percent of the country's citizens.

9.1.4 Perhaps of as great importance are the services which GUYSUCO provides to the communities in which it operates, in the areas of education, training, health, housing, water and recreation. Indeed, distinct sugar communities exist in Guyana, with all the characteristics of company towns.

9.1.5 Although Guyana had produced 395,000 tonnes of sugar in 1971, output had dropped to about 130,000 tonnes by 1990. Since then, however, production has steadily increased to over 300,000 tonnes in 1999.

9.1.6 GUYSUCO holds 164,000 acres of Guyana's lands, all on the crowded coastland. Indeed, it is the largest agricultural entity in the country. On average, depending upon cultivation practices, and the disposition of land for human settlement, services and recreation, it occupies between 90,000 and 100,000 acres. It is estimated that about 50,000 acres of GUYSUCO's land holdings are either lands which are not under cane, or lands which have been permanently abandoned.

9.1.7 GUYSUCO is a relatively high-cost producer of sugar. Its cost of production was US\$0.23 per pound in 1995/96 and 1996/97, and US\$0.22 in 1997/98. It is estimated that in 1998/99 the production cost was also US\$0.22 per pound. This compared unfavourably with the production costs of the U.S.A., North East Brazil, Mauritius, India, Fiji, Australia, Guatemala, and Malawi, for example.

9.1.8 These production costs are not evenly distributed across Guyana. They are highest in the western regions of the country: in Wales, Uitvlugt, LBI and Enmore – the Demerara estates; and lowest in the other four of the eight estates which exist in Guyana: Skeldon, Albion, Rose Hall and Blairmont. The differences in productivity between these two groups of estates are partly due to agro-climatic conditions and, it is sometimes claimed, to contrasting management practices.

9.1.9 Despite its comparatively high production costs, GUYSUCO is able to sell almost all its production in Europe, the U.S.A. and in CARICOM countries. This is because of the EU/ACP Sugar Protocol; the EU/SPS programme; the USA sugar programme; and the Common External Tariff (CET) which CARICOM countries apply. These various agreements and arrangements give preference to the entry of Guyana's sugar at prices

that are usually higher than the so-called "world-market" price, or more properly, the price of sugar in the non-preferential market.

9.I.10 The fact that the value of the Guyana dollar has depreciated somewhat over the years has assisted GUYSUCO in the payment of local costs, such as salaries and wages, simply because the foreign exchange which it earns abroad realises more Guyana dollars and stretches farther.

9.I.11 Although some of the sugar-cane that is grown in Guyana is produced by farmers, as opposed to GUYSUCO's estates, the country has the lowest farmer/estate cane ratio among CARICOM sugar producers. Thus, in the crop year 1997/98 the farmer/estate ratio in Barbados was 66:34; in Belize, and St. Kitts and Nevis 100:0; in Jamaica 53:47; and in Trinidad and Tobago 58:42. In Guyana, however, the farmer/estate cane ratio was 10:90, quite the reverse of that obtaining in the other countries.

9.I.12 Cane farmers in Guyana receive a higher proportion of the returns that are obtained from the sale of sugar than in any other country in the Caribbean region.

9.I.13 Even though extensive repairs have been undertaken in recent years, the eight sugar mills in Guyana are generally not only old, but obsolescent. Moreover, the small capacity of these mills does not permit GUYSUCO to benefit from the scale-economies that are inherent in modern mills, and that are necessary if the industry is to become competitive.

9.I.14 Much of the old farm machinery, with which GUYSUCO operated until the mid 1990s, has been replaced. However, the industry's field operations are not as modernised and mechanised as they might be.

9.II GUYSUCO'S FUTURE PLANS

9.II.1 As has been noted, sugar production in Guyana is basically uncompetitive. In other words, were it not for the preferential treatment which it now receives, GUYSUCO would find it difficult to survive. In order to overcome this difficulty, GUYSUCO has formulated a plan which it claims, if implemented, will enable it to become "an entrepreneurial, customer driven, retail market oriented producer of top-quality sugar and associated value-added by-products, at a cost which will enable it to compete in any foreseeable market environment."

9.II.2 The objectives of the plan are to increase production to 435,000 tons per annum; reduce the costs of production to US 10 to 11 cents per pound; sell to more countries in CARICOM than they now do; increase the total volume of sugar exports to these territories; develop more regional markets; add value to the basic output through the production of special sugars, and the introduction of new pack sizes and packaging; establish a distillery, if this proves feasible; build a sugar refinery; and develop an intra-Caribbean market for refined sugar.

9.II.3 The implementation of the plan is to be phased. It includes, however, the following elements:–

- the construction of a new 350 tch factory at Skeldon (111,000 tonnes) from an expanded cane area;
- the designation of new lands for mechanisation;
- the closure of the Rose Hall factory, and the concomitant expansion of the Albion facilities to 415 tch (153,000 tonnes);

- the utilisation of diffusion technology at both the Skeldon and Albion factories;
- an increase of sugar production at other factories in order to secure another 171,000 tonnes of sugar per annum;
- the upgrading of agricultural practices, and the introduction of new varieties; and
- the co-generation of power from both the Guyana Power and Light Company and GUYSUICO's own bagasse, for use in the new and expanded factories.

9.II.4 The company asserts that, if its plan were implemented, the benefits which would accrue to Guyana would, *inter alia* be as follows: an increase in gross foreign exchange earnings to a minimum of US\$145 million per year, and net earnings of US\$80 million; the generation of cash resources sufficient to pay dividends from the year 2006; a more equitable distribution of income; and the enhancement of rural wealth through, for example, an expansion in the utilisation of cane produced by private farmers, and increased levels of other economic activity.

9.II.5 The plan assumes that the current preferential markets will remain, albeit at reduced prices; that Guyana will retain its SPS/SP allocation; that this allocation would be augmented by amounts accruing from those CARICOM countries in which sugar production has declined and will decline and therefore fail to meet their preferential targets; and that sugar sales from Guyana to other CARICOM countries would increase to 80,000 tonnes. This last assumption is based on two considerations. First, that CARICOM, at present, imports 120,000 tonnes from outside the region; and second, that the imposition of its Common External Tariff would enable Guyana to be more competitive in CARICOM markets than producers from outside the regional arrangement.

9.II.6 Other measures which would be taken to improve productivity encompass the restructuring of the administration and management both on the estates and at the corporation's head office; the amalgamation of contiguous estates; the out-sourcing of a range of activities and services wherever these prove to be cost-effective; the mechanisation of cane loading; and the introduction of modern processing technology into existing factories.

9.II.7 The new plan envisages, for the Skeldon expansion, the addition of 2,120 hectares of new land at Manarabisi, and a further 6,000 hectares between Skeldon and the Canje river. Thirty percent of the production from this increased area will be derived from cane farmers.

9.II.8 For the Albion/Rosehall consolidation, 2,476 hectares of new land, south of the 43 Koker expansion, will be taken over. There will also be an expansion of cane farmers' land at Blairmont. Moreover, temporarily abandoned land in the East Demerara area will be brought back into cultivation.

9.II.9 The total costs to be incurred would be US\$200 million: US\$87 million for the new Skeldon operations; US\$64 million for the expanded facilities at Albion; and US\$49 million for the refurbishing of other estates. This amount excludes routine replacement expenditure and contingencies. It is projected that these amounts would be raised from loans (US\$130 million); the company's own resources (US\$40 million); and the sale of land (US\$30 million). The possible sources of the loans that are discussed in the plan are listed as offshore borrowings denominated in Euros/US dollars to match revenue streams; concessionary loans to meet providers' requirements; commercial-corporate bonds/commercial paper to be issued for local borrowing; suppliers' credit; and lease purchases.

9.III ISSUES AND CONSTRAINTS

9.III.1 Prices and Markets

9.III.1.1 The importance of the sugar industry to our country's development, now and in the foreseeable future, cannot be over-emphasized. On the one hand, it is evident that a strategy must be formulated which would ensure that the sector continues to contribute, and indeed increase, its contribution to the country's well-being. On the other hand, because many of the factors which might influence the degree of its contribution to our economy are beyond our control, it is imperative that we proceed in a measured manner and not over-commit our scarce financial resources to a programme of development that might be founded on insecure assumptions and premises. The assumptions to which we refer are the future world price of sugar, the share of the CARICOM market for Guyana's outputs of sugar and sugar products, and Guyana's ability to compete in the globalised world.

9.III.1.2 All the evidence suggests that at least to the end of the first decade of the twenty-first century, Guyana would continue to have preferential access to the EU sugar market. In addition, if the current CARICOM agreements hold, as we fully expect them to do, access to this sugar market is also assured. It cannot be stressed too much, however, that what is being emphasized here is *access*. **To sell in these accessible markets, Guyana's sugar export prices must be competitive.**

9.III.1.3 It is submitted that it would be a somewhat futile exercise for us to engage in calculations which would somehow indicate what will be the future world price for sugar after the current preferential prices are reduced. It would be an exercise in futility for three basic reasons. First, a time horizon of ten years is too long for any meaningful forecast to be made in regard to the price of a commodity such as sugar, simply because technologies tend to change, there may be significant structural changes in the political economy of the industry, and also because it only takes two to three years to bring idle land into cultivation. Second, there is really no "world price", because most of the world's sugar is either sold in preferential or in home markets in which prices differ considerably, are often subsidised, and are definitely not market prices. Third, the "residual sugar price" or the non-preferential sugar price, has fluctuated wildly over the last decade and a half. There is consequently no reliable trend on which to assess prices, and even if there had been such a trend, because the residual market is only a portion of world consumption, such a "trend" would have little validity in a non-preferential world.

9.III.1.4 It follows, therefore, that it is not entirely convincing to base the future of what is certainly one of the most important industries in the country merely on forecasts of future prices (no matter who has made these forecasts). What has to be done, in undertaking the hazardous task of assessing the country's future competitiveness in this area, is to examine the price structure of both GUYSUCO and competing producers, in order to determine which producer, or which country, would have the competitive edge.

9.III.1.5 It should be emphasised that we are not suggesting that Guyana will not be in a position successfully to compete with those countries which already incur lower costs. What we are asserting is that GUYSUCO can do so only if radical changes are made in its sugar cane production methods, particularly in West Demerara; and in its sugar cane procurement practices and the prices it pays for farmers' cane. In addition, its management and administration of the various sugar estates will have to be tighter and less costly; and the productivity of its factories will have to be considerably enhanced. Moreover, transportation and shipping costs, which comprise a relatively large proportion of the corporation's expenditure will have to be considerably reduced. Furthermore, in order for GUYSUCO to improve its competitiveness, it will have to mechanise a significant proportion of its field operations.

9.III.1.6 The position is not one of unrelieved gloom. On the contrary, it appears that, for several reasons, GUYSUCO is in a position to meet these requirements for increases in productivity and, therefore, of becoming competitive.

9.III.1.7 First, the evidence suggests that if a controlled drainage and irrigation regime is applied to the West Demerara estates, the water content of the soils could be considerably reduced at specific periods in the growing cycle, and, as a consequence, the sucrose content of the cane would be significantly increased. In addition, there are methods of ripening which also could contribute to the enhancement of the cane's sucrose content. Indeed, there is much evidence demonstrating the close correlation between the application of these agronomic and chemical methods and the profitability of the West Demerara estates.

9.III.1.8 Second, it is possible to reduce the unit cost of cane purchased from private cane farmers, to bring it into line with the prices paid to similar producers in other countries, by assisting them to increase their productivity. If this were done, the total financial benefits accruing to the farmer would be most rewarding, but GUYSUCO's unit costs would be reduced. In other words, it would pay to devote more resources to the training of cane farmers in all aspects of sugar cane production.

9.III.1.9 Third, there appears to be a shortage of administrative managerial, and technical skills on several estates. This affects the company's productivity and competitiveness. If steps are urgently taken to train the required personnel, or even to hire professionals of competence, GUYSUCO's competitive position would be much improved.

9.III.1.10 Fourth, with the company's plan to purchase a new modern factory, and to amalgamate others, not only would productivity be much improved, but the company would be able to enjoy the benefits of scale economies that are now denied it. Moreover, the company's energy costs, which are a not insignificant portion of its current expenditure, would be reduced, because of its programme to utilise bagasse in much of its future production. In addition the new mills would be much more efficient than those which are now being utilised.

9.III.1.11 Fifth, with the improvement of the deep-water facility in the Berbice River, shipping and transportation costs will inevitably be lower.

9.III.1.12 Sixth, GUYSUCO proposes to mechanise its loading operations. This, too, will reduce costs.

9.III.1.13 Similar considerations apply, in large part to the East Demerara estates, which are currently the highest cost producers within GUYSUCO. They are high-cost producers mainly because, according to the corporation, they utilise a high proportion of relatively poor soils, factory capacity at Enmore and LBI is under-utilised, and management's performance is less than optimal. Steps should therefore be taken to bring new lands into cultivation as far as possible, to replace the mills over time by more efficient modern units, and to improve the effectiveness of the management.

9.III.1.14 **Our own calculations indicate, when all these factors are taken into account, that GUYSUCO would be able to reduce its production costs to about US\$0.10 per pound. Indeed, it is reasonable to expect that there would be a market for 500,000 tonnes of sugar per year, and that accordingly, GUYSUCO's unit production costs would be further reduced.** On the other hand, our investigations suggest that those countries which now produce sugar at costs that are lower than Guyana's have in several respects, already attained optimal efficiency. It is most unlikely therefore that they would be able significantly to reduce costs in the future.

9.III.1.15 Moreover, Guyana possesses an additional advantage because of its membership of CARICOM. CARICOM currently purchases 150,000 tonnes from third countries to meet their needs. Furthermore, it appears that because of production costs which range between US\$0.40 to US\$0.48 per pound, the governments of Barbados, Jamaica, St. Kitts and Trinidad effectively subsidise sugar production in their countries. This is most unlikely to continue. The captive CARICOM market can therefore provide a most lucrative cushion for our production.

9.III.2 Training

9.III.2.1 The new programmes that are planned for the rejuvenation and expansion of the industry would require a number of personnel in new disciplines, and an upgrading of the skills of many of those who are now employed in GUYSUCO. Indeed, there appears to be a shortage of managerial and technical skills in every major activity within the industry. Training will be needed, for example, in co-generation, in the operation of the proposed distillery, in the packaging and manufacture of special sugars, and in sugar refining practices. Moreover, the management, administrative and negotiating skills of GUYSUCO's top Guyanese need to be somewhat enhanced. It will be necessary also to train both factory and field workers in many areas which will be innovations for most Guyanese: in the new factories, and with new types of field machinery.

9.III.3 Land

9.III.3.1 Land issues in Guyana are most complex. It is for this reason that a chapter in this Strategy is specifically devoted to this topic. However, because GUYSUCO is the largest single occupier of land on Guyana's coast, its land holdings and their disposition deserve special consideration. As pointed out earlier, GUYSUCO holds 164,000 acres of the country's land. The average size of its eight estates is therefore approximately 20,500 acres. Albion, which occupies 28,166 acres is the largest, while Wales with 14,232 acres is the smallest. About two-thirds of the land held by the corporation is leased from the State, while the remaining one-third is owned by the entity. However, because GUYSUCO is a state-owned enterprise, in reality *all* the land held by the corporation is owned by the State, or by the people of Guyana.

9.III.3.2 Much of the land which GUYSUCO now controls is prime land. Furthermore, even the company's most expansionary plans will not require them to utilise all of their land holdings. In contrast, the prospects of many of the other economic and social developmental activities that are put forward in this NDS would be greatly improved if the unutilised lands were to be taken back by the State. This is true for housing programmes; for the development of other types of agricultural products, including aquaculture; for the location of industries; and for the siting of commercial activities. In addition, it has been argued that freehold land on the coast of Guyana is remarkably high-priced, partly because the State owns so much of it, and partly because GUYSUCO holds a relatively large proportion which is not being beneficially occupied. **Steps should therefore urgently be taken to rationalise the use of the land now held by GUYSUCO before it proceeds with its plans. For, as has been pointed out, it intends to sell a significant amount of land for commercial uses in order to raise money to implement its future programmes. It must not be allowed to do so, on its own terms. In other words, it must raise the short-fall of US\$30 million, that would be occasioned if it is not permitted to sell the nation's land, from commercial loans or other sources.**

9.III.4 Employment Costs

9.III.4.1 Employment costs (including incentives and non-pecuniary worker benefits) account for over sixty percent of the cost of producing a tonne of sugar in Guyana. It is evident that the company intends further to reduce its labour force in order to curtail employment costs, particularly as it would be impossible and undesirable to reduce the package of incentives now earned by the workers. This almost inevitable reduction in the labour force is obviously a factor to be taken into account in the formulation of a *national* development strategy.

9.III.5 Cane Farmers

9.III.5.1 Private cane farmers produce cane at a higher cost than the estates, primarily because their yields are lower and the quality of their cane inferior. These defects in the product are in turn due to ineffective drainage and irrigation systems, the relatively primitive nature of the technology that is applied, and the inadequacy of their farming practices. In addition, the co-operatives and private groups which grow sugar

cane, tend to be disorganised. Nevertheless, it is desirable, for social reasons, and, as we have seen, ultimately for financial reasons, that private cane farming outputs be increased significantly above their current low level. Accordingly, the inefficiencies that are inherent in the system will have to be rectified.

9.III.5.2 The present procedures for establishing cane prices are cumbersome and, more important, do not appear to be either equitable or to be designed to improve efficiency. There are two determining aspects of the present price structure for farmers' cane: the method whereby the conversion factor from cane to sugar is derived; and the proportionate distribution of the net income from this sugar between the farmer and the processor. Both of these matters are dealt with in the National Cane Farming Committee Act, No. 29 of 1975 (as amended) which establishes that the so-called Puerto-Rican formula be employed to calculate the cane to sugar ratio. The appropriateness and accuracy of this formula have been fiercely challenged by Guyanese cane farmers, and by specialists in this area. Indeed it is now generally acknowledged that the Jamaican Recovery Cane Sugar formula is more accurate and equitable. There is obviously, therefore, a need to revisit this very crucial matter.

9.III.5.3 There are also problems in respect of the share of proceeds. It appears that cane farmers in Guyana are paid more than most similar farmers in other parts of the world. In the face of this, GUYSSUCO seems reluctant significantly to expand their dependence on cane farmers. However, the returns to cane farmers are directly linked to the future of the company, be it through favourable sugar prices or efficient factory recoveries. It is evident, therefore, that the entire cane farming structure, from the organisation of farmers, the provision of inputs and extension services, to the methods of calculating both sucrose content and prices, be rationalised.

9.III.6 Transportation Costs

9.III.6.1 As has been emphasised elsewhere in this National Development Strategy, transportation costs for Guyana's exports are generally higher than in most other countries. This is especially true for sugar. If we are going to be competitive we will have to remove those constraints over which we have some control: the absence of an adequate deep-water harbour, the dearth of bulk loading facilities, and the inadequacy of our current port administration.

9.IV SECTORAL OBJECTIVE

9.IV.1 The objective of the sector is to improve the competitiveness of the industry so that it may increase its contribution to the development of Guyana.

9.V THE STRATEGY

9.V.1 The overall strategy will be (i) to utilise the most productive soils that are available within those agro-climatic areas which would yield the highest amounts of sugar at the lowest possible costs; (ii) to increase the productivity of the Demerara sugar estates by adopting more effective agronomic practices; (iii) to improve the quality of the milling process, through the establishment of new mills and the amalgamation of others; and (iv) to add value to the sugar cane raw-material through the expansion and deepening of the manufacturing process, the widening of the range of sugar based products that are produced, and the enhanced packaging of these products.

9.V.2 Between 2001 and 2005 a detailed plan for the diversification of economic activity in those areas in which the Demerara estates are located will be formulated and implemented.

9.V.3 This plan will include the establishment of special micro-credit facilities the provision of training in various disciplines, trades, crafts and entrepreneurship; and the provision of land for cultivation, housing, and business development on favourable terms. In other words, a comprehensive land settlement and land redistribution plan will be implemented.

9.V.4 At least two housing schemes, one in Western Demerara and the other in Eastern Demerara will be established. The measures and incentives described elsewhere in this NDS, particularly in the Chapter devoted to *Housing*, will apply.

9.V.5 The inhabitants of those areas will be encouraged specifically to engage in the cultivation of high-value non-traditional crops, aquaculture, and to establish specific micro-industries. They will be provided with relevant technical assistance and extension services.

9.V.6 The important point is to ensure that undue reliance is not placed solely on sugar in these districts, and that there would be available other suitable options for employment.

9.V.7 Although the main thrust of the sugar expansion programme would be in Berbice, i.e. Skeldon, Blairmont, Rosehall and Albion, where GUYSUCO'S plans for the extension of both milling and field capacity will be concentrated, sugar production in the Demerara estates will be made more competitive and, at the same time, an enabling environment for the creation of alternative development will be provided.

9.V.8 GUYSUCO's overall production capacity will be increased to 500,000 tonnes of sugar per year.

9.V.9 Almost immediately, steps will be taken for *all* the land now occupied by GUYSUCO to revert to the State. The State will then lease to GUYSUCO, at normal rates, the land which it requires for current and future planned expansion.

9.V.10 After consultation with representatives of the cane farmers, the National Cane Farming Act will be revised in order to make it more equitable, to increase the involvement of a greater number of cane farmers in the production of cane for GUYSUCO, to reduce production costs, and to make Guyana's cane more competitive.

9.V.11 New contracts, which will endeavour to be fair both to the cane farmers and GUYSUCO, will be negotiated.

9.V.12 Cane farmers will be provided with land to enable them to produce more cane.

9.V.13 Cane farmers will be trained in a range of agronomic skills to improve their performance. In addition, essential inputs and extension services will be provided to enable them to increase their productivity

9.V.14 Efforts will be made to involve the workers of the industry, the citizens of Guyana, the Government of Guyana and the company which now manages GUYSUCO in the ownership and control of the industry. To this end, twenty percent of the shares will be offered to Booker Tate as a strategic partner, 20 percent to the employees of the industry, 20 percent to the citizens of Guyana, and 20 percent will be retained by the Government. The remaining 20 percent will be offered to the world at large.

9.V.15 A "claw-back" clause will be inserted into the agreement, in order to ensure that at least for a period of ten years after privatisation, sugar will be produced by the Company in order that the social and economic structures that are attendant on the continuation of the industry are not unduly disrupted and jeopardised.

9.V.16 It is important that Booker Tate agree to purchase shares in the recapitalised company, not only because they appear to possess better leverage powers in the international markets, but also because their purchase of these shares would provide evidence of their financial faith in the industry, and in the development plans which they have assisted in formulating.

9.V.17 The financial resources that are required to implement GUYSUCO's plans for the future will be raised through a consortium, put together by a lead banker, who will obtain the required amounts on the international market.

9.V.18 Intensive training courses will be mounted for all levels of the company's employees, in order to prepare them for the expansion and modernisation of the industry.

9.V.19 The Jamaican Recoverable Cane Sugar Formula, rather than the Puerto-Rican, will be employed in determining the sugar content of the sugar cane supplied by farmers to the estates.

9.V.20 Because of the importance of the CARICOM market to the survival of Guyana's sugar industry, special efforts will be made by the Ministries of Foreign Affairs and Trade to ensure that the terms of the Common External Tariff are honoured by all CARICOM members.

9.V.21 All import duties and consumption taxes will be waived for a period of five years, as for other industries.

9.V.22 The sugar levy will be abolished.

9.V.23 Mechanical loading procedures will be introduced. The possibility of engaging in mechanical harvesting, particularly in the new planting areas, will be seriously examined.

CHAPTER 10

RICE

10.I BASIC FEATURES OF THE SECTOR

10.I.1 The rice industry is the second most important agricultural industry in Guyana. Indeed, it is second to sugar only in terms of foreign exchange earnings. Rice is the largest user of agricultural lands, (some 80,000 hectares being currently double cropped) and absorbs and influences more of the working population than any other industry in Guyana. About 12,000 farmers are involved in production and the industry supports at least 10 percent of Guyana's population directly and many more indirectly. It is the major source of income and employment in rural areas. In addition, the industry contributes approximately 20 percent of agricultural GDP and 12 percent of export earnings. On top of all this it is the main staple of the population, with consumption estimated at being around 50 kg per capita. The by-products, bran and broken rice, are the main constituents of locally produced animal feed. Broken rice is also used in the brewery industry. Moreover, the hull (shell) of the rice is utilised as fuel for paddy dryers and for electricity generation. The recent El Nino phenomenon has brought into focus the need for more use to be made of the rice straw as fodder for livestock.

10.I.2 Padi production has increased from 156,000 tonnes (equivalent to 93,444 tonnes of milled rice) in 1990 to 568,186 tonnes (equivalent to 340,911 tonnes of milled rice) in 1997. This has been achieved through increases in acreage and yields. The harvested acreages have grown from 126,878 acres in 1990 to 352,678 acres in 1997, and yields from 1.23 tonnes to 1.61 tonnes during this period. Because of the effect of El Nino on the first crop of 1998, there was a reduction in the acreage harvested, and production fell: the acreage harvested was 319,789, production was 522,907 tonnes of padi (equivalent to 339,890 tonnes of rice), and the average yield was 1.63 tonnes per acre.

10.I.3 Production is in the hands of both small and large farmers with holdings varying from less than 10 acres to over 1,000 acres. There are ninety-eight mills operating within the industry, with a total milling capacity of 242 tonnes of padi per hour. The capacity of mills ranges from 1/2 tonne to 20 tonnes of padi per hour.

10.I.4 The institutions specific to this sub-sector are: the Guyana Rice Development Board (GRDB), the Guyana Rice Producers Association (RPA), the Guyana Rice Millers and Exporters Development Association (GRMEDA), the Burma Rice Milling Complex, and the Caribbean Rice Association. It cannot be too strongly emphasised, however, that the future development of the rice industry depends not so much on these institutions, important though they are, but on the macro-policies of Governments, and the performance of institutions such as the Ministry of Agriculture, the Drainage and Irrigation Board, the University of Guyana's Faculty of Agriculture, the Guyana School of Agriculture, and the regional and local authorities. The lending policies of commercial banks would also exert a great influence on the industry's future.

10.I.5 In the latter half of the 1970s and for much of the 1980s, the fortunes of the rice industry declined, mainly because of the government's interventionist policies and the very high degree of central control. However, by the late 1980s, the rice policy which relied mainly on price control was clearly not working and Government began to dismantle its pricing and institutional structures. In 1989 the price formula was abandoned and farmers were allowed to sell freely to the market of their choice. The devaluations of the exchange rate in that period also had the effect of dramatically raising rice prices relative to most other prices in the Guyanese economy. Also important was the fact that Government privatised almost all its parastatal rice mills (retaining only one complex). This improved the competitiveness of the sector and gave farmers and millers the incentive to invest in the industry.

10.I.6 These major policy changes, and the institutional restructuring of the industry which accompanied them, were supported by agreements with the IDB for foreign exchange to rehabilitate rice mills, and to buy field equipment, spares; and with CIDA to procure fertilisers.

10.I.7 The spectacular growth of the industry during the period 1991 to 1996 was also facilitated by very favourable export prices. This was due mainly to the preferential access to the market. Between 1991 and 1996, the bulk of Guyana's exports went to the EU. However, from 1993 to 1996 most exports were made through the Overseas Territories (OCT) of the E.U., because imports of semi-milled rice through the OCT attracted no levy and there was no quota. On the other hand, exports from ACP countries that were made directly to the European Union attracted a levy of 50 percent. Moreover, a quota of 125,000 tonnes for semi-milled rice and 20,000 tonnes polished broken was imposed on direct imports from ACP countries.

10.I.8 Preferential access contributed to exports increasing from 51,000 tonnes in 1990 to 262,000 tonnes in 1996, with 90 percent of the exports going through the OCT. With the imposition by the E.U. of safeguard mechanisms in 1997, and the establishment of a quota of 160,000 tonnes in 1998, 125,000 tonnes by the direct route and 35,000 tonnes through the OCT – total exports to the European Union have not only declined, but mainly go via the direct route. In 1998 some 97,951 tonnes (41 percent of total exports) went by the direct route and 22,093 tonnes (9 percent of total export) went through the OCT. The reduction of exports to the European Market has forced the industry to seek other outlets in the Caribbean and Latin America. However the prices in these markets are much lower than these that were previously obtained in the European market.

10.I.9 Guyana's rice exports to the Caribbean, primarily to Jamaica, have had to compete with exports from the United States which were sold at concessionary prices under the PL 480 Programme. However, this programme is being reduced and may eventual disappear. Guyana will therefore no longer be faced to compete with this low priced product.

10.I.10 Another export market is that for parboiled rice in Caricom, particularly in Trinidad. In order to meet the growing needs and preference of Caricom and other markets, Guyana has established three modern parboiling facilities and more are in the pipeline. However, access to the Caricom market has been slow because of its concern over quality, the continuing importation of rice from extra regional sources, and the fact that the CET is not being applied in these transactions. The establishment by specifications for parboiled rice traded in the region, and recent bi-lateral discussions with Trinidad, should address the quality issue.

10.I.11 In 1994 the Rice Act streamlined the institutional arrangements. The Guyana Rice Milling and Marketing Authority (GRMMA) was dissolved and a small parastatal rice company was created to operate the Burma mills that are the only rice factories that remain state-owned. In addition, the GREB and the NPRGC were merged into the new Guyana Rice Development Board (GRDB).

10.I.12 The role of the Board is (a) to develop the rice industry in Guyana and to promote the expansion of the export trade in rice; (b) to establish facilities for the conduct of research, to conduct research relating to rice, and to extend to rice farmers, through an established system, the benefits derived from such research; (c) to engage in such promotional and development activities that the Board deems necessary for developing the rice industry. Its specific functions are (a) to grade and certify rice and padi and to train and license persons, who are, in the opinion of the Board, qualified to grade; (b) to monitor developments in the rice industry at home and abroad; and (c) to provide sectoral information to farmers, millers and exporters; and (d) to be responsible for research and extension activities relating to rice, this task having been moved from the National Agricultural Research Institute (NARI) in 1995. All its activities are funded from a commission received by GRDB.

10.I.13 Two other institutions play an important role in the rice sector: the Guyana Rice Millers and Exporters Development Association (GRMEDA), and the Rice Producers Association (RPA). GRMEDA promotes the development, growth and expansion of the rice industry through the design and implementation of appropriate programmes. It also acts as a conduit for channeling technical and financial assistance to rice industry operators. The RPA is a statutory body which also qualifies as a non-governmental organisation. Its overall objectives are to promote, protect and advance the interests of rice producers generally and to facilitate GRDB's efforts in the operation of research and extension services by being in a position to mobilise and inform rice farmers of relevant meetings, etc. It receives financial support for its activities from the Guyana Rice Development Board.

10.II ISSUES AND CONSTRAINTS

10.II.1 Institutional Framework

10.II.1.1 Regulation of Quality

10.II.1.1.1 The privatisation of the rice industry has not been sufficiently complemented by appropriate regulations and standards. The most serious consequence of this is that the reputation of Guyana as a rice exporting country is at risk because exporters enter into contracts which they are not always able to fulfill; provide rice of inconsistent quality; ship rice of a quality and quantity that are incompatible with their contracts; and apply standards of grading which are not acceptable to overseas markets.

10.II.1.2 Analysis and Planning

10.II.1.2.1 There is a lack of capacity for analysis and strategic planning for the expansion of the rice industry in Guyana.

10.II.1.3 Provision of Services

10.II.1.3.1 Despite the general shift towards divestment and market liberalisation in the rice sector, many services such as research and extension and the grading of rice and padi, are still provided through public sector institutions. These, whenever feasible, should be undertaken by the industry itself.

10.II.1.4 Financing of GRDB

10.II.1.4.1 The GRDB is in an unsustainable financial situation as it depends heavily upon its commissions, i.e., an export tax, to finance all of its operations. Other cost recovery options need to be explored.

10.II.1.5 Role of RPA and GRMEDA

10.II.1.5.1 As representatives of producers and millers, these institutions need to play a more active role in the development of the rice industry.

10.II.1.6 Institutional Linkages

10.II.1.6.1 Inadequate linkages with international research institutions restrict productivity gains, and this could lead to the duplication of research programmes. In addition, Guyanese rice institutions are currently isolated from related agencies such as the Lands and Surveys and the Hydraulics Departments.

10.II.2 Markets

10.II.2.1 The European Market – Easy access to the European Union in the past may have given the industry a false sense of security. However, developments within the last two to three years would seem to indicate that this market would no longer be so remunerative. Moreover, because of the current quota system, Guyana may not be able to export as much as it used to.

10.II.2.2 The Caricom Markets – The market within Caricom provides for the importation of some 160,000 tonnes of rice – 110,000 tonnes white rice and 50,000 tonnes parboiled rice. The imposition of the CET on rice from extra-regional sources should offer some protection to Guyana's exports. However, the tariff may be inadequate to protect against the import of cheap Asian rice, particularly from Vietnam.

10.II.2.3 Other Caribbean Markets – Cuba imports up to 400,000 tonnes of rice annually, practically all of which is sourced from Vietnam. The lack of foreign exchange restricts Cuba's ability to pay cash for its rice. Haiti imports up to 200,000 tonnes annually. In 1997, Guyana exported some 22,000 tonnes of rice to Haiti but in 1998 exports were at a reduced level. When Haiti becomes a member of Caricom, and with the imposition of the CET, Guyana's rice will benefit from preferential access. The Dominican Republic imports annually some 50,000 tonnes. Guyana has not yet been able to access this market.

10.II.2.4 The African Market – This market provides for the export of low quality rice e.g. broken. Potentially, this market can absorb over 50,000 tonnes annually.

10.II.2.5 South and Central America – Exports have been made to Colombia, Ecuador, Peru, Nicaragua, Honduras and Mexico on a limited scale. However, a potential market for increased exports lies in these Latin American countries where a market exists for some 2.0 million tonnes – Brazil (1.0m tonnes), Colombia (200,000 tonnes), Peru (170,000 tonnes) etc. Access to these markets would be facilitated by Guyana becoming a member of the Andean Pact and Mercosur.

10.II.2.6 Because of inadequate export facilities (wharves, bulk handling and bond facilities) and high handling and transport prices, the costs of exporting rice are high in Guyana. In addition, the constant siltation of Guyana's rivers restricts the size of ships that can use available wharf facilities. Guyana's shipping costs to Europe could be significantly reduced if larger ships could enter its harbours, and bulk facilities were available. This would also reduce transportation costs to other markets.

10.II.2.7 The domestic market is characterised by variable supplies and consequently fluctuating prices. The need exists for increased availability of packaged parboiled and white rice.

10.II.3 Productivity and Technology Development

10.II.3.1 Power failure during milling contributes to an increase in post harvest losses. Variations in the supply of electricity can lead to complications in operations and to serious damage to rice milling equipment.

10.II.3.2 Lack of sufficient investment in the milling sector has left the industry with inadequate equipment, particularly in the areas of drying and storage. Millers are finding it difficult to access finances to upgrade their mills at low interest rates.

10.II.3.3 Farmers have restricted access to credit. The main reason for the lack of credit is the insistence of commercial banks on freehold title as loan collateral, and their reluctance to accept leasehold land, especially short leases, or field equipment in its place. The high interest rates charged by the financial institutions contribute to farmers' inability to service their loans, and of course, to invest.

10.II.3.4 Despite the large increases in the amount of land that has come under rice cultivation in recent years, the general constraints to the transfer of lands have restricted the producers' ability to access these lands. In addition, delays in the processing of lease approvals and extensions; the existence of short-term leases for which there are no renewable options; and the difficulty of transferring leasehold land into freehold are factors which contribute to the lack of security of tenure experienced by rice farmers occupying state lands. This insecurity has led to the reluctance of producers to make long term investments in the land. As a consequence, the sustainability of the land and future productivity gains are jeopardised. The establishment of the Lands and Surveys Department as a semi autonomous commission, and the rationalisation of the land tenure system in our country, it is argued, will remove some of the present constraints.

10.II.3.5 The size of many of the rice holdings is insufficient to support a household and to keep rural incomes above a certain minimum level.

10.II.3.6 The deterioration of the drainage and irrigation network over the past twenty years has been a considerable constraint on increased production and productivity. Although the rehabilitation and improvements which have been undertaken during the last six years have removed some of the constraints, much more needs to be done.

10.II.3.7 Companies importing reconditioned machinery and equipment do not always have the necessary spares for repairs. Moreover, opportunities for machine rental are insufficient. As a consequence, Guyanese farmers therefore invest in new machinery even when the size of their holdings makes such an investment uneconomical.

10.II.3.8 Farm productivity must be increased through the development of high yielding varieties that are not only resistant to blast diseases, but which also possess good milling and cooking qualities. In addition, varieties need to be of different grain lengths e.g. extra long grains, long grain and medium grains to meet the needs of different markets. The milling potential of the varieties should be between 55 and 70 percent.

10.II.3.9 The transfer of technology which is of fundamental importance to the future of the rice industry in order to increase productivity, reduce costs and make the industry internationally competitive, must be optimised. The efforts of GRDB Extension staff should therefore be concentrated on: (i) increasing yields, (ii) improving quality (iii) reducing cost (iv) producing high quality seed.

10.II.3.10 The RPA also plays an important role in the extension service. It is mainly responsible for mobilising farmers to attend seminars and demonstrations that are organised by GRDB. It also has the vital function of collecting information from the producers' communities.

10.II.3.11 The current strategy of increasing rice production through the utilisation of more land, greater intensity in input use, expanded milling facilities etc. is occurring within a general void of environmental legislation, enforcement, and monitoring. Although the passage of the Pesticide Control Bill and the Rice Factory Acts has addressed some of the environmental concerns, a more comprehensive approach to this problem is necessary.

10.III SECTORAL OBJECTIVES

10.III.1 The overriding objective is for the sector to become internationally competitive. This would ensure its sustainability in the face of reduced preferential access and falling export prices. In order to attain this primary objective, costs must be reduced throughout the rice production process of the industry.

10.III.2 This might be done through a combination of activities. First, the unit cost of padi production must be lowered, primarily by increasing yields per acre. At present the average national yield is around 26 bags

per acre. This ought to be increased to at least 35 bags per acre. Second, Guyana's milling yields are currently at around 45 to 60 percent. These rates are significantly lower than those of the U.S.A., for example, which are estimated to be between 55 and 70 percent. And third, transportation costs need to be reduced by the development of export facilities, including the establishment of bulk loading facilities. The establishment of such facilities will permit the loading of larger vessels and their quicker turn around.

10.IV THE STRATEGY

10.IV.1 The capacity of the GRDB to develop a set of regulations and standards relating to contractual procedures, payment mechanisms, rice quality, etc., will be strengthened.

10.IV.2 The newly promulgated standards and regulations will be supported by a widespread campaign that will be designed to build awareness, and by training holding programmes that are especially targeted to millers and exporters.

10.IV.3 GRDB will collaborate with GRMEDA in conducting seminars to demonstrate the correct procedures for entering into export contracts and maintaining quality control.

10.IV.4 There is no satisfactory mechanism for arbitrating contractual disputes in the rice industry. However, through assistance provided by the IDB, draft arbitration rules have been drawn up. These are now being reviewed by legal personnel and will be enacted following acceptance by operators within the industry.

10.IV.5 The areas devoted to rice cultivation will be expanded. This will require close coordination between relevant agencies, so that the lands which offer the highest potential for rice production may be more precisely identified. However, it is already known that the best areas for expansion, given the suitability of the soils, are:

Region 6	
Potoco, Left Bank Canje River	45,000 acres
Black Bush Backlands	15,000 acres
Manarabisi	8,000 acres
Jackson/Moleson Backlands	17,000 acres

Region 5	
MARDS – South of Jagdeo Canal	20,000 acres
Region 3	
Hogg Is	10,000 acres
Region 2	
Akawini/Pomeroon	5,000 acres
South of Supernaam R.	5,000 acres

10.IV.6 The provision of services will be rationalised, taking into account the relative merits of different institutions and agencies in both the public and private sectors. GRDB (whose functions include regulation and promotional activities) will concentrate on providing services which the private sector cannot perform, for example, research; the establishment of research linkages with international agencies; extension, in collaboration with the RPA and GRMA; marketing information; the training of extension agents; and grading.

10.IV.7 Extension services will cover more than the traditional area of providing information on production techniques and inputs (seeds, agro-chemicals). They will, in particular, include farm management as a core

activity.

10.IV.8 The RPA and GRMEDA will be strengthened and provided with assured sources of financial support from the GRBA, in the short run. In return for this support, these institutions will put in place systems for the full representation of their members, including transparent and democratic elections.

10.IV.9 The organisations will also move towards increased cost recovery for the services they offer, and will aim at eventually becoming self-financing.

10.IV.10 GRDB will establish a Market Information System. International linkages are especially vital to the future prosperity of Guyana's rice sector, particularly in the areas of market intelligence and research.

10.IV.11 A permanent, formal and appropriate mechanism for bringing together the primary institutions of the agricultural sector to discuss and resolve issues such as land use; the need to put down new infrastructure (D&I, roads, etc.) for opening new rice lands; competition for scarce water resources; and environmental matters will be established. Such issues require regular consultations among agriculture officials, other relevant professionals and civil society.

10.IV.12 The industry will be assisted by the relevant government industries to continue to access the markets of the European Union, Caricom and Africa. At the same time, it will be helped to develop further the markets in the broader Caribbean, particularly in Haiti and Cuba, and in other countries of Latin America. The use of Information Technology will be of special importance in this regard.

10.IV.13 To penetrate these markets successfully, the industry will be encouraged to establish a "consortium" with the capacity to export large shipments, develop export strategies, and a market intelligence service.

10.IV.14 Mechanisms for "futures" marketing will be developed.

10.IV.15 In addition to the rehabilitation of facilities in Georgetown, and the installation there of bulk and bond facilities, such services will be installed at Corriverton, Rosignol and Essequibo.

10.IV.16 A review of the present system of drying and storage will be undertaken in order to effect its improvement as these operations are crucial to the attainment of increases in yields and quality.

10.IV.17 Regulations will be issued and enforced to ensure that the quality of rice exported is that which is stated on the export contract.

10.IV.18 The rice industry will be diversified. Fiscal incentives will be provided for the production of such value-added goods as rice flakes, popped rice, rice straw (for mushroom production and as a ruminant feed) and for the use of hulls as a fuel and in concrete production.

10.IV.19 Within the general policy of facilitating credit to Guyana's producers, measures will be taken to ensure adequate financing for rice producers and millers. In this regard several options will be explored e.g. group lending, in which farmers guarantee each other's loans; and the conversion of existing leaseholds to transferable tenures which could be used as collateral.

10.IV.20 Millers will be provided with more intensive courses in financial management, in the operation of letters of credit, and in other methods of payment, as part of their regular extension and advisory services.

10.IV.21 Appropriate institutional and fiscal arrangements will be put in place to ensure that the Drainage and Irrigation system is operated and maintained in an efficient and sustainable manner. This will include greater farmer participation.

10.IV.22 A machinery/inputs pool will be established to reduce costs of production.

10.IV.23 A research programme, based on both market demands and the experience of farmers, will be developed and implemented. Such a programme will be relevant to the farmers' perception of field-level problems, and should lead to the long run sustainability of the rice sector.

10.IV.24 Research will concentrate on increasing productivity, decreasing the variability of yields, increasing pest resistance, enhancing quality, and developing and maintaining those characteristics demanded by export markets and domestic consumers.

10.IV.25 The economic analysis of research proposals will determine the feasibility of research projects. However, some *a priori* suggested priority areas for research are the improvement of germplasm, integrated pest management, and integrated crop management.

10.IV.26 The training programme for extension workers will be oriented to ensure that the interface between extension workers and farmers results in a two-way flow of information. In addition, business management will be emphasised.

10.IV.27 The protection of the environment, particularly but not exclusively with respect to the utilisation and disposal of agro-chemicals, will be emphasised throughout the sector.

10.IV.28 Extension workers will be trained in environmentally sustainable cropping activities for padi production.

10.IV.29 The private sector and agro-chemical suppliers will be encouraged to play a role both in supplying information to farmers through the established extension network, and in providing information on the use of agro-chemicals directly to users.

ACTION PLAN

(Completion Target Dates)

Main Activities	2005	2010
1. Increasing Yields	32 bags per acre	36 bags per acre
2. Improve milling yields	50/65	55/68

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3. Reduce transportation cost	Rosignol	Corriverton
4. Establishment of bulk loading Facilities	Georgetown Essequibo	
5. Expansion	Completion of MMA phase II & III Hogg Island Akawini/Pomeroon	Canje Jackson/Moleson

PROJECTED PRODUCTION AND EXPORTS (2000–2010)

Production	2000	2005	2010
i. Acreage ii. Average yield (bags/acre) iii. Padi production (M/t) iv. Rice equivalent (M/t)	<ul style="list-style-type: none"> • 360,000 • 28 • 640,000 • 384,000 	<ul style="list-style-type: none"> • 400,000 • 32 • 813,000 • 528,000 	<ul style="list-style-type: none"> • 420,000 • 36 • 969,000 • 650,000
Exports (M/t)			
EU	100,000	100,000	100,000
Caricom	100,000	120,000	130,000
Haiti	40,000	50,000	80,000
Africa	30,000	30,000	30,000

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Latin America (Columbia/Peru, Brazil)	30,000	100,000	160,000
Total	300,000	400,000	500,000

Achievement of the above levels of production and export is dependent on the sectoral objective being attained.

CHAPTER 11

AGRICULTURAL INSTITUTIONS

11.1 BASIC FEATURES OF THE SECTOR

11.1.1 The institutions which service the sugar and rice industries have already been described. Those which support the non-traditional crops and livestock sector are the Ministry of Agriculture; the Ministry of Fisheries, Crops and Livestock; the Ministry of Regional Development; the Regional Democratic Councils, the National Agricultural Research Institute; the University of Guyana; and the Guyana School of Agriculture. This list is not exhaustive, but it contains the main agencies.

11.1.2 The Ministries of Agriculture (MOA), and Fisheries, Crops and Livestock (MFCL) are at the centre of the sector. They formulate policies and monitor their implementation. They also collect, process, analyse and disseminate relevant information.

11.1.3 The Ministry of Agriculture comprises the Lands and Surveys and the Hydrometeorology and Planning Departments; the Ministry of Fisheries, Crops and Livestock is composed of the Crops and Livestock, and the Fisheries Departments.

11.1.4 The Crops and Livestock Department is primarily responsible for the provision of technical and extension services to the farming communities. Associated with the Ministries' extension activities are the following organisations and units that are all functioning far below their optimum and need to be rehabilitated if extension capabilities are to be enhanced – the Agricultural In-service Training Communication Centre (AITCC), which was developed as a centre to provide agricultural information and to train farmers and extension personnel; the Veterinary Diagnostic Laboratory which provides parasitology, haematology, pathology, microbiology and other diagnostic support to the livestock rearing community (this laboratory is currently not operational); and the Livestock Station at Mon Repos, which was originally designed as a centre for livestock research in the Ministry of Agriculture. It has now been transferred to NARI.

11.1.5 The present functions of the National Agricultural Research Institute (NARI) are to advise on, and develop, appropriate systems to promote balanced, diversified and sustained agricultural development and optimise agricultural production through adaptive and investigative research; and to facilitate the use of improved production technology by agricultural producers, and establish adequate feedback systems for them in order to achieve and maintain national self-sufficiency and export capacities in food and fibre.

11.1.6 An Agricultural Research Committee advises the Minister on matters of policy relating to agricultural research; supervises and controls the functioning and activities of the Institute; approves, oversees and evaluates the programmes being implemented by the Institute; and gives general and technical guidance to NARI's Director.

11.1.7 At its inception, the overall objective of the National Dairy Development Programme, which was established in 1984, was to achieve national self-sufficiency in fresh milk by 1988. However, the mandate of the NDDP was expanded and its mission statement was subsequently modified to read as follows:– "to spearhead the development thrust of a self-sustaining, self-regulating, economic viable cattle industry within the context of national self-sufficiency in milk and dairy products, beef and beef products, and the export of these commodities."

11.I.8 The original Guyana Marketing Corporation (GMC) was created in 1963. The Corporation operated like the typical marketing board of many developing countries at that time. It bought all farm products offered to it at a predetermined price, and then sold the produce to consumers at various outlets and from trucks going from house to house. Perhaps not unexpectedly there were tremendous losses. Accordingly, in 1985 the policy of the Guyana Marketing Corporation was changed drastically. There was a total cessation of all buying and selling operations, and a mandate to provide market facilitation services to the private sector for the export of non-traditional agricultural produce, facilitate local market development, develop and disseminate post-harvest technology, conduct market research and provide market intelligence services to farmers was adopted. In 1997, the "new" Guyana Marketing Corporation resumed the buying of farmers' produce, but at prices that are negotiated directly with them. Moreover, only quality produce, for which there is a ready demand, is bought.

11.I.9 There is also a Technology Transfer Unit which develops and provides training on grading, storage, packaging and the transportation requirements for quality produce; promotes the production of non-traditional crops specifically for the export market; develops and documents the steps involved in exporting perishables to specified markets; and provides market extension services.

11.I.10 In addition, there is a Commercial/Market Policy Unit, the aims of which are to provide a one-stop documentation service for exporters of agricultural produce; carry out market research for the private sector for a fee; make available certain kinds of approved packaging for exporting produce; and advise the government on agricultural marketing policy for non-traditional produce.

11.I.11 The Guyana School of Agriculture (GSA) offers both a certificate and a diploma programme in agriculture. The certificate programme is a two-year course with a strong practical bias and is intended for youths with a full primary education, who have attained the age of seventeen. It is designed to equip young people for successful farming careers. The diploma programme is a sub-professional two-year course designed for students with a secondary school background.

11.I.12 The Regional Educational Programme for Animal Health Assistants (REPAHA) conducts a diploma programme similar to the GSA's and trains students in Animal Health and Animal Production. A survey which was undertaken in the early 1990s has indicated that employers of REPAHA graduates want them to have some competence in animal production and agribusiness management also. This deficiency has been addressed and at the 1994 graduating exercise, the first group of students graduated in Animal Production from REPAHA.

11.I.13 The University of Guyana currently offers two first degree programmes which are conducted by the Faculties of Agriculture and Education. The programme offered by the Faculty of Agriculture is a four-year course and leads to a general Bachelor of Science degree in Agriculture. The Faculty of Education offers a Bachelor of Education degree, with an option in Agriculture.

11.I.14 Within the existing Regional Democratic Councils (RDCs) the Neighbourhood Democratic Councils (NDCs) are meant to be an institutional structure through which plans and decisions, regarding the needs of farmers and communities in general, can be co-ordinated. There are, in addition, several quasi-governmental entities (e.g. SIMAP) as well as non-governmental and other organizations (co-operatives, producer associations, etc.) which operate at the community level.

11.II ISSUES AND CONSTRAINTS

11.II.1 Poor definition of the roles of this plethora of public and private sector agricultural institutions hinders their performance, and leads to the fragmentation of planning, policy analysis and product implementation capacity. Government institutions must ensure that the activities that they perform are those that the private sector cannot effectively undertake. Because of the budgetary constraints facing the public sector, there have been some reductions in staffing and the shedding of many services (e.g. extension services and the supply of inputs) traditionally provided by the MOA, the MFCL, and other agricultural support institutions.

11.II.2 The capacity in the MOA and the MFCL for policy review is weak. A further disadvantage is an orientation that is based on the management of centrally provided as opposed to community based services. Moreover, low levels of emoluments in the public service militate against the provision of high quality administrative and planning services. Severe financial constraints have also led to an inadequate availability of equipment and supplies, further limiting the effectiveness of the Ministries' staff.

11.II.3 In terms of agricultural products, there is a dualistic institutional structure characterised on the one hand, by well-organized marketing and other support arrangements for the major export products of rice and sugar; and by fragmented, under-funded and ineffective arrangements for non-traditional crops and livestock, on the other.

11.II.4 There are poor and inadequate linkages among institutions, and poor communications among departments of the MOA and the MFCL.

11.II.5 Agricultural technological services are often provided in a context in which important infrastructure and non-agricultural services are not in place. This lack of an integrated approach leads to the poor absorption of technology. In addition, the Ministries' operations are characterized by a limited interface between clients and the planning and executing services. This often results in poor feedback and, consequently, a lack of relevance of plans and programmes.

11.II.6 A general concern in the provision of public agricultural services is that they are not targeted to rural households of modest means. More well-off farmers can afford to, and do, bring in their own private extension advisers on such matters as crop varieties, planting and cultivating strategies. Obviously this option is out of the question for the poorer farmers. Extension services are one hundred percent subsidised, and therefore the question must be posed as to whether it is justified to provide such services, at the expense of the tax payers, to rich clients.

11.II.7 Similar observations can be made in the case of livestock services, and in regard to the assistance provided in the adoption of better post-harvest practices.

11.II.8 The specific constraints on NARI's research programme are: inadequate contacts with farmers; poor linkages with agricultural extension and other related organisations in agriculture; inadequate evaluations of research impact; and a lack of staff motivation, at both the professional and the sub-professional levels. In addition, the research programme is frequently not related to the needs of the farming community; does not give sufficient consideration to the economic and marketing components of production; and do not efficiently validate research findings before transferring them to the farmer.

11.II.9 The remuneration packages paid to staff at NARI are unattractive.

11.II.10 There is an absence of agribusiness and socio-economic marketing experts on the staff.

11.II.11 The resources devoted to agricultural research are minimal and derisory.

11.II.12 In addition to the financial constraints which reduce the efficiency of almost all the government institutions in Guyana there are certain basic constraints in regard to the delivery of tertiary agricultural education: training is too theoretical and lacks a strong practical dimension; there is a lack of orientation to national problems and conditions; the student intake is relatively low; there is a lack of basic textbooks and other teaching aids; and the available human resources are not optimally utilized.

11.II.13 Neighbourhood Democratic Councils have only a limited role in the mobilisation and disposition of resources and, under current legal and administrative arrangements, cannot function effectively as providers of services at the local level. Local authorities have been forced to operate through a narrow window of influence at the regional level, and have been made to be responsible primarily to central and regional governmental structures, and not to their constituents.

11.II.14 Studies of the sector have revealed that the supply of credit to farmers is limited by factors such as the risks linked to agricultural production and markets; the sector's small size; and its informal nature.

11.II.15 The penetration of rural areas by commercial banks is low, leading to inadequate savings, credit mobilisation and delivery. In addition, this unsatisfactory interface and contact between the banks and the agricultural producers, coupled with the preference of commercial banks for asset-based, as opposed to cash-flow, lending, results in an inflexible lending policy towards the sector. As a consequence, only a small percentage of the banks' funds are lent for developmental purposes, while an extremely high percentage is invested in special deposit accounts or Treasury Bills and are therefore not available for productive lending to the economy. Indeed, current lending rules and practices effectively exclude from access to institutional and commercial credit more than eighty percent of Guyana' farm households.

11.III THE OBJECTIVE

To develop institutions which would facilitate the improvement of the operations of the agricultural sector, by enhancing their efficiency in providing public services in the production and marketing of agricultural produce.

Specifically, the objectives are to:–

- (i) improve institutional support for the development of the diversified small farm sector;
- (ii) give greater priority to the rural poor as beneficiaries of publicly supplied services;
- (iii) improve co-ordination between national and local institutions so that local communities can access information and resources from other levels of government;
- (iv) improve the effectiveness of production and marketing organisations in providing economic benefits to their members;
- (v) enhance the public sector's capacity to assist these organisations;
- (vi) enhance the mobilisation of rural savings;
- (vii) increase credit delivery to agricultural activities that are based on rural savings; and

(viii) increase the long–run viability of institutions for agricultural finance.

11.IV THE STRATEGY

11.IV.1 A new board will be established to encompass the roles currently being performed by NARI, NDDP, NGMC and the Crops and Livestock and Fisheries Departments of the Ministries. The Directors of this Board will be appointed by, and be answerable to, the Ministers. The GRDB will act as a model for this Board, which will be named the Guyana Agricultural Research and Development Board.

11.IV.2 The Board will maintain strong links with, and co–ordinate and monitor the activities of, non–governmental agencies such as IICA, CARDI, and FAO, in order to ensure that the work being undertaken in Guyana by these agencies conforms to the Government's stated policies and overall directives.

11.IV.3 The Board will be semi–autonomous but, in the first instance, will be financed through the present current and capital allocations made to these institutions. However, it will eventually become self–financing through revenue derived from the operation of an export levy on agricultural produce.

11.IV.4 The membership of the Board will be broad–based, and will include all interests that are involved in the sector: local government bodies; community organisations; representatives of the rice and sugar sectors, and representatives of training institutions.

11.IV.5 Research and extension will be based on the requirements of producers.

11.IV.6 The main institutions of training i.e. the Guyana School of Agriculture (GSA) and the Faculty of Agriculture, University of Guyana (FA/UG) will be strengthened in material and human resources through internal and external funding so that they may more effectively produce agricultural scientists and practitioners capable of assisting in the enhancement of Guyana's agricultural productability and its diversification.

11.IV.7 The University of Guyana Degree Programme will be improved along two lines: students will be required to have a better scientific grounding in the early stages of their training programme; and in later stages, they will be exposed to practical farming situations and be oriented, through appropriate coursework, field excursions and assignments to actual problems affecting the agricultural sector.

11.IV.8 Students will be attached for six months, as part of the course of training, to farms of various sizes and with different production techniques and practices.

11.IV.9 A higher degree programme will be instituted at the University of Guyana in which all the available resources, both human and physical, of NARI, GRDB, GUYSUCO, NGMC and related organisations such as the Iwokrama and Tropenbos Projects, would participate.

11.IV.10 Government will organise incentive packages for trained agriculturists aspiring to become farmers, particularly in the provision of land and in the availability of developmental capital.

11.IV.11 Post office–based savings institutions will be revived in rural areas.

11.IV.12 A window in the private sector development bank will be devoted specifically to small farmers.

11.IV.13 Group guarantee schemes such as that of the Grameen Bank will be instituted.

11.IV.14 In addition, a linked set of rural credit unions, both for mobilising more rural savings and for retaining more funds in rural areas through agricultural production and marketing loans, will be created.

CHAPTER 12

NON TRADITIONAL AGRICULTURE

12.I BASIC FEATURES OF THE SECTOR

12.I.1 The term "non-traditional agriculture" is used in Guyana to include all components of the agricultural sector with the exception of rice, sugar, forestry and fishing.

12.I.2 The major non-traditional crops (NTCs) are the following: *Cereals and Legumes*: corn, blackeye, minica; *Oilseeds*: peanut and coconut; *Ground Provisions*: cassava, sweet potatoes, eddoes, yam, tania/dasheen, plantains; *Vegetables and greens*: tomatoes, cabbage, pumpkin, bora, ochro, boulangier, squash, cucumber; *Herbs, Spices and Seasonings*: eschallot, hot pepper, ginger, tumeric; *Fruits*: banana, pineapple, pear, carambola and watermelon; *Other Fruits*: mangoes, genip, cherry, awara; *Citrus*: lime, grapefruit, orange; *Other Crops*: Coffee, cocoa and cotton; pasture/forage, ornamentals and floriculture.

12.I.3 Livestock includes dairy and beef cattle, swine, poultry, sheep, goats, wildlife and other livestock such as rabbits and bees.

12.I.4 Non-traditional crops are geographically distributed across the 10 regions.

12.I.5 Except for coconut palms, almost all of the fruits, vegetables, legumes and ground provisions are grown by a large number of small farmers mostly along the coastal belt and in the riverain areas, but also in enclaves in the intermediate savannahs and in the townships which border neighbouring countries. In contrast the production of coconut palms is largely concentrated in the coastal areas, and is achieved chiefly by large farmers.

12.I.6 Small farmers produce all fruit and most vegetables grown in Guyana, 80 percent of the grain crops, 60 percent of the coconuts, and 40 percent of the palm oil.

12.I.7 Non-traditional agriculture comprises farming systems that are small in scale, use a low level of technology, and are labour intensive. Subsistence farming, a tendency to stick to traditional agricultural practices, and an absence of supportive services to encourage farmers to adopt improved methodologies for increasing production and productivity also characterise the sub-sector. However, the sub-sector's contribution to the livelihood of rural households, national food security, and foreign exchange earnings are not insignificant.

12.I.8 Guyana is self-sufficient in vegetables (including root crops and tubers), fruits, beef and mutton. Indeed, it is virtually self-sufficient in all crops, except spice and vegetables. Moreover, eggs, poultry and milk production has increased considerably in recent years.

12.I.9 Although the sub-sector's export potential remains relatively untapped, overseas markets are opening for a wide variety of crops and will gain momentum with the advent of improved marketing arrangements. The cases of pineapple and plantain are especially noteworthy but there is a growing awareness of production and export possibilities for many other non-traditional crops.

12.I.10 The agri-business and agro-industrial development of the sub-sector are in the hands of small, poorly resourced independent operators, and the supply chain is characterised by low productivity, high post-harvest losses, high prices to consumers and praedial larceny. Nonetheless, the sector provides sustenance to the rural poor, most of whom are self-employed in agriculture or are workers in the rice and sugar industries, both of which are seasonal.

12.I.11 Export volumes of non–traditional crops have increased through the initiatives of small traders rather than through organised and adequately financed operations.

12.I.12 Most of the crop farmers in Guyana are involved in mixed crop farming. Current agronomic practices are consistent with those for systems of low level technological packages.

12.II ISSUES AND CONSTRAINTS

12.II.1 Land and Infrastructure

12.II.1.1 The administration of State lands is inefficient, leading to the frustration of farmers' efforts to obtain information on leases and the availability of unutilised idle land. In addition, there is imprecision in the identification of boundaries.

12.II.1.2 There is no clear demarcation of which land falls under the jurisdictions of the Lands and Surveys Department, the Geology and Mines Commission, and the Forestry Commission.

12.II.1.3 There is growing competition for available land among traditional and non–traditional crops, housing, and industrial land developers.

12.II.1.4 The historical layout of drainage and irrigation infrastructure is consistent with what is required for rice and sugar, but is not necessarily appropriate for the economic production of NTCs and livestock. Yet the necessary modifications to the land infrastructure have not been made, even in cases when farmers wish to emphasise NTCs and livestock.

12.II.2

Extension Services, Research and Development

12.II.2.1 Extension services and research and development are under the jurisdiction, or depend upon, too many government, semi–autonomous, and regional and international agencies that are too dispersed and ineffective.

12.II.2.2 Limited funding, staff shortages, low salaries, poor transport facilities, and inadequate and infrequent meetings of personnel impede collaboration and coordination.

12.II.2.3 Research is sometimes unrelated to the needs of farmers and is spread out over a wide range of crops in diverse geographical zones.

12.II.2.4 The sub–sector is not structured along the lines of those developed for rice and sugar. As a result, incentive packages and specific programmes for some components of the industry have been neglected.

12.II.2.5 Regional training sessions are sporadic. All were cancelled in 1998.

12.II.3 Socio–cultural and economic constraints

12.II.3.1 There is a high incidence of praedial larceny in the sub–sector.

12.II.3.2 There is a high incidence of migration, especially of youths, from the rural to the urban areas.

12.II.3.3 There is much gender discrimination in employment practices

12.II.4 Marketing

12.II.4.1 The production of NTCs and livestock is not guided effectively by market intelligence services. The seasonality of export demand, weather patterns, and input price fluctuations leads to a very unstable supply of produce ranging from gluts to scarcity. Input availability, soil types, farmers' experience and perceived demand also govern production levels and farmers' choices of commodities. There is poor organisation among farmers at local and national levels, and hence there is little exchange of experience and no coordinated effort to obtain information on external markets.

12.II.4.2 Essential marketing linkages (local and overseas) are limited. Knowledge of existing trends in prices and demand, and of the availability of supplies, is therefore restricted. Much needed information on existing acreages, costs of production, seasonality etc., that is required for farmers' planning purposes is poorly collated.

12.II.5

Transportation

12.II.5.1 Inadequate transportation infrastructure and poor transport services are a major impediment to the marketing of agricultural products within and out of Guyana. Poor transportation services contribute to the wide spread between ex–farm and retail prices. Riverain producers and consumers are particularly subject to very inadequate transportation linkages, but, in general, both water and road transport are unreliable and high priced. Local roads are in very poor conditions.

12.II.5.2 Exporters are seriously inconvenienced by poor port facilities, limited cargo space, and the frequent need for transshipment of goods through Trinidad.

12.II.6 Storage and handling

12.II.6.1 The extreme unavailability of power and potable water supplies are major causes of post–harvest losses and are a most serious constraint to the development of milk pasteurisation units and meat storage facilities.

12.II.6.2 The country has a shortage of trained cadres in post–harvest technology and very few entrepreneurs in agro–processing. A high percentage of wastage therefore results, and less than one percent of total production is exported.

12.II.6.3 The six established wholesale marketing centres (except Black Bush Polder) have been sidelined by private initiatives and local retail markets (34 municipal and 36 roadside), and are poorly serviced with basic amenities.

12.II.7

Product Standards

12.II.7.1 The handling of foods in production, manufacturing, transportation, storage and in other stages in the farm–to–market chain leaves much to be desired. The health and the nutritional status of the population are affected by adulteration, and the presence of industrial pollutants, environmental contaminants, toxins and chemical residues in the food consumed. The Government Analyst's Department cannot effectively oversee

all stages of food production, and seems to concentrate its activities on the microbiological surveillance of retailed food.

12.II.7.2 Legislation to ensure that standards are met for the inputs used by the sub-sector is not enforced.

12.II.8

Credit and Investment

12.II.8.1 The highly risky nature of agricultural production in an environment that is not supportive of its development is not conducive to the procurement of lines of credit. Lending agencies do not seek out businesses in rural districts and are truly ignorant of farmers' financial needs. For whatever reason, GAIBANK, the major agricultural lending agency in the past, did not seek to recover funds expeditiously from defaulters. This has assisted in creating a poor credit servicing mentality in rural areas, which in turn increases the difficulties of obtaining new credit.

12.II.8.2 Prospective investors in NTCs and livestock have been unable to fulfill the conditionalities of creditors, and have been discouraged by unattractive terms for financing. Misleading investment guidelines further exacerbate the farmers' predicament. Tax evasion and nonpayment of duties are prevalent in the system.

12.II.9 Labour and Other Inputs

12.II.9.1 For the most part, agricultural labour has over the years moved into the rice, logging and sugar subsectors, or totally out of agriculture. The difficulties that farmers experience in obtaining basic inputs (particularly from overseas) and the low prevailing income levels are disincentives to the development of the subsector.

12.II.10

Education and Training

Youth

12.II.10.1 The teaching of agriculture in primary schools was catered for by the fifth component of the SSEE syllabus but this was discontinued in the early 1980s, due to financial and staffing constraints. At the secondary school level Agricultural Science is offered at CXC. The number of students taking this subject is extremely low, and the proportion of passes derisory.

Adult

12.II.10.2 Pre- and post-service training in agriculture is provided by the Faculties of Agriculture and Education of the University of Guyana, the Guyana School of Agriculture (GSA), the Regional Educational Programme for Animal Health Assistants (REPAHA), the Agricultural In-service Training Communication Center (AITCC), the Ministry of Agriculture (MOA), the Ministry of Fisheries, Crops and Livestock (MOFC&L), and the National Agricultural Research and Development Institute (NARI). Most of these institutions lack adequate teaching instruments, do not offer programmes that are relevant to the country's developmental needs, are strapped for funds, and do not have the required numbers of skilled teachers. The end result is under-qualified and poorly trained graduates, unable to function in the farming communities to which they are later exposed.

Continuous farmer training

12.II.10.3 Apart from the Dairy Training Centre at the St. Stanislaus College farm, there is no teaching institute established specifically for training farmers.

12.II.11

Germplasm Supply

12.II.11.1 Germplasm is produced both by the governmental and privately owned agencies. Collectively they are unable to satisfy the demand for plants and, apart from using old stock, are in need of infrastructural rehabilitation. This problem is now being addressed.

12.II.12 Plant Protection and Quarantine Services

12.II.12.1 The inadequate monitoring of our ports, places the country's agriculture at risk. Guyana's plant health capabilities are inadequate and, accordingly, the country is unable to make definitive statements on the incidence of pests and diseases. This affects the ability to export.

12.II.12.2 The Office of the Quarantine Services has no authority to withhold a consignment after Customs' clearance. Very often, because of the ignorance of the staff of the Customs' Department, importers are allowed to clear agricultural products without import licenses, phytosanitation certificates or inspections from Plant Quarantine officers.

12.II.12.3 The country has no facilities for the bulk treatment of fruits and vegetables earmarked for export.

12.II.13 Livestock

12.II.13.1 Guyana is "self-sufficient" in fresh meats but not in milk and poultry. Although the production of milk and poultry has increased considerably over the years, livestock production is still well below its potential capacity. The industry requires a well-coordinated infusion of support services to sustain and increase production, and ultimately to capture export markets. Low level technological applications prevail in the subsector, and farmers (particularly pig and small ruminants producers) operate largely at subsistence levels.

Nutrition

12.II.13.2 Liveweight gains, milk production and the reproductive performance of all livestock classes are sub-optimal because of inadequate nutritional programmes.

12.II.13.3 The supply of readily available energy-based feeds, rice bran and wheat middlings, has been reduced abruptly because these products are exported to preferential markets for cargo rice, and because of the unlimited importation of processed flour.

12.II.13.4 Protein feeds are imported at high costs, thus contributing to the elevated prices for poultry and pork.

12.II.13.5 Ruminant producers continue to compete with traditional crop farmers for land for pasturage.

Animal Health

12.II.13.6 The country's livestock population is relatively disease-free except for endo- and ecto-parasitic burdens and their associated diseases. Tuberculosis in cattle has been identified in some enclaves. Poultry producers have been experiencing undiagnosed conditions of respiratory ailments and nervous (tremor) syndromes. Pigs and small ruminants continue to be affected by endo-parasitic burdens that have not been evaluated.

12.II.13.7 The veterinary services offered by MOFC&L are very poorly supported, and veterinarians are incapable of carrying out their functions because of the lack of transportation, drugs, equipment and facilities. A case in point is the inability to carry out the Bovine Tuberculosis Eradication Programme because of the inadequacy of transportation.

Genetic Improvement

12.II.13.8 There are no specialised breeding programmes in place, except for cattle via the National Dairy Development Programme's (NDDP) Artificial Insemination Service, which uses imported frozen semen from improved beef and dairy breeds.

12.II.13.9 Poultry and swine breeding is *ad hoc*, and mainly consists of a selection process. The introduction of new breeds for these classes of livestock is at a standstill.

12.II.13.10 For all types of livestock financial constraints and the absence of adequate physical facilities inhibit progress in animal breeding in relation to acquiring germplasm for tropically adapted breeds from overseas, and establishing evaluation programmes.

12.II.13.11 There is no monitoring agency to document and evaluate what is occurring in the field, though it is known that farmers, based on their own preferences and experience, are conducting breeding experiments.

Management

12.II.13.12 The constraints highlighted in the paragraphs relating to nutrition, health and genetic improvement are indicative of the low level of management practices that are employed in livestock rearing. Poultry and pig rearing is basically intensive, while cattle, sheep and goats graze extensively in very diverse management systems. Ruminant livestock are generally considered as a family asset, only to be drawn upon as the need arises and not to be developed economically. Farmers do not seek to find markets for their meat animals but sell only when approached by butchers and middlemen. Poultry farmers tend to plan for the immediate future and frequently make market predictions that lead to economic losses in addition to causing serious disruptions in supply. New approaches to integrated farming practices have not caught on with the farming community, despite the fact that many small producers have both livestock and crops on their farmsteads. Often, one activity influenced by short-term market conditions will be undertaken to the detriment of another.

12.III SECTORAL OBJECTIVE

12.III.1 The overall objective of the sector is to increase the rate of growth of its output, in the knowledge that by doing so a most significant number of job opportunities would be created.

12.IV THE STRATEGY

12.IV.1 Extension Services, Research and Development

12.IV.1.1 A modern computerised information centre to facilitate the collection, storage and retrieval of agricultural information, will be established at NARI.

12.IV.1.2 Research and development studies will be concentrated on selected commodities and in geographically delineated zones. The selection of the commodities will be based on their production potential and marketability.

12.IV.1.3 Research on relevant farming systems, particularly those relating to farm mechanisation, will be developed.

12.IV.1.4 Extension officers will pay particular attention to imparting information on agro–processing and post–harvest losses, and will give guidance on the selection of plant and animal germplasm.

12.IV.1.5 The private sector and the farmers will become more involved in establishing the specific goals of agricultural research, by themselves participating in extension through, for example, workshops at both the community and national levels.

12.IV.1.6 The National Science Research Council, comprising agricultural agencies and the heads of relevant institutions, will be resuscitated to ensure collaboration and exchange of ideas on a regular basis.

12.IV.1.7 **A National Livestock Development Agency** will be established. This will be similar in structure and function to the NDDP (semi–autonomous), and will incorporate the NDDP as well as development programmes pertaining to small ruminants (sheep and goats), swine, apiculture, rabbits and farmable wildlife (e.g. alligators, iguana, deer, etc.).

12.IV.2 Marketing

12.IV.2.1 An advisory services agency will be established to provide marketing intelligence (including market opportunities) to farmers on a timely basis. The agency will also help producers in finding inputs, obtaining access to markets, and in directing farmers' concerns to relevant institutions. It will establish a computerised information network with linkages to overseas markets. The encouragement of agro–processing as the thrust for the future will be the focus of this agency.

12.IV.2.2 More individuals will be trained in post–harvest technology. The concept of marketing centres will be revived, and the management of the municipal markets will upgrade facilities for weighing, storage, sanitation, communication, banking, parking, rate collections, etc., in an all encompassing effort to provide more adequate services to buyers and sellers.

12.IV.2.3 The private sector will be involved in the management of marketing centres.

12.IV.2.4 The Food and Drug Act will be updated to conform with international standards for chemical and disease free food.

12.IV.3 Credit and Investment

12.IV.3.1 Microcredit schemes will be put in place in order to assist in the development of this sector. This will be an integral part of the country's overall poverty elimination programme.

12.IV.3.2 Credit agencies will be sensitised to farmers' financial requirements by extending their outreach programmes into the rural communities and will introduce systems of lending via small loan schemes for farmers without collateral.

12.IV.4 Rural Development Centres and Agricultural Cooperatives

12.IV.4.1 The NDDP has made a positive step in registering all cattle owners in Guyana and unifying them by forming village groups, distinct and regional associations and by ensuring their participation at national cattle farmer congresses. A similar arrangement exists for the rice farmers via the RPA, with the GRDB acting as a regulatory body. This type of organisation will be encouraged for the NTCs and other livestock producers, with support from the NGMC, IICA, CARDI, and the Extension Division of the Ministries of Agriculture, and Fisheries, Crops and Livestock.

12.IV.4.2 Agricultural Cooperatives will be revamped to encourage the formation of self-help societies that aim to improve the economic welfare of its members through planning and management.

12.IV.4.3 Government will support these groups via direct contracts for food supplies to Government-managed institutions and feeding programmes for schools and the needy.

12.IV.5

Other Inputs

12.IV.5.1 Government and private investors will together foster the creation of machinery pools and fabrication units to cater for the mechanisation needs of farmers. Government will take active steps to encourage reputable international fruit marketing firms to come to Guyana and enter into contract farming.

12.IV.6

Education and Training

12.IV.6.1 Agriculture will be re-introduced into the primary school curriculum.

12.IV.6.2 Learning institutions will be better equipped with teaching instruments – laboratories, audiovisual aids, experimental plots and cages, green houses.

12.IV.6.3 Improved working conditions and salaries will be provided to attract a higher calibre of teaching staff.

12.IV.6.4 The mandate of the FTC will be to promote awareness of technological advancement and to educate farmers continuously on developments in agriculture. The FTC will cater for residential courses and will be equipped with audiovisual and publishing facilities for the production of films, radio programmes and newsletters that can be disseminated through the media.

12.IV.7

Agronomic Practices

12.IV.7.1 The Crop Improvement Programme and the Extension Service units of the MOA in collaboration with research agencies will create programmes that have applicability to existing farming conditions, and are consistent with the varying levels of farmers' economic resources. Priority will be placed on developing

agronomic programmes for crop varieties that have assured markets (particularly export markets). Cropping systems that allow for the continuous supply of those food crops that are traditionally seasonal will also be given special attention.

12.IV.7.2 Water management; the control of weeds, pests and diseases; fertilizer application and soil fertility; land preparation; planting methods; harvesting; and crop suitability for various ecological and climatic zones will be specifically considered.

12.IV.8

Germplasm Supply

12.IV.8.1 A programme for the attainment of self-sufficiency in germplasm will be established. The programme will address collection, characterisation, certification and varietal improvement.

12.IV.8.2 If importation must continue in the short run, strict guidelines for quality standards, adaptability and phytosanitation will be formulated and applied.

12.IV.8.3 The supply of germplasm has an enormous potential for cost recovery. Government will progressively remove subsidies in this venture. This step may cause farmers to be more careful in the handling and care of purchased planting material.

12.IV.9

Plant Protection and Quarantine Services

12.IV.9.1 A survey on the main pests and diseases affecting local crops will be conducted.

12.IV.9.2 Programmes to control, prevent and eradicate the major pests and diseases identified in the survey will be developed and implemented.

12.IV.9.3 Workshops on critical pest and disease problems will be organised, and crop farmers will be apprised of their incidence, location, and relevant control methods on a timely basis.

12.IV.9.4 Plant quarantine laws will be utilised to provide greater authority to officers in the execution of their duties.

12.IV.9.5 New surveillance points will be opened along the country's borders to restrict the entry of pests and diseases.

12.IV.9.6 A National Surveillance Service Unit (NSSU) will be established.

12.IV.10 Livestock

Nutrition

12.IV.10.1 The production of alternative energy feeds (low quality rice, corn, sorghum, or cassava) to counteract the decline in the supply of rice and wheat by-products will be pursued. Private investment in this area will be encouraged, through the provision of fiscal incentives.

12.IV.10.2 **Similar incentives will be provided for the establishment of a rendering plant to produce high protein meat meals from the quantities of fish, poultry, swine and ruminant processing wastes that are currently discarded.**

12.IV.10.3 The livestock population of Guyana would, of course, require adequate pasturage to support its sustainable development. Efforts will be made to improve the productivity of the saline soils to the north and the acid soils farther inland for livestock rearing.

12.IV.10.4 Research will continue on the development of nutritious forage species that are adaptable to soil conditions.

12.IV.10.5 Land use capability studies will seek to ascertain the most appropriate areas for livestock rearing.

12.IV.10.6 An animal nutrition project that aims at educating farmers on correct feeding principles will be undertaken, collaboratively, by all relevant agencies (MOFC&L, NDDP, CARDI and IICA).

Animal Health

12.IV.10.7 The Veterinary Laboratory at Mon Repos will be rehabilitated to provide all the services needed for disease surveillance and laboratory diagnostics. Diseases of immediate concern are tuberculosis, and bovine paralytic rabies, since clinical evidence points to their presence in Guyana. The laboratory staff will also be involved in disease eradication and control programmes and in developing systems of herd health prophylaxis. Clients will be charged for services.

12.IV.10.8 Clearance for the export of meat (particularly beef) from Guyana hinges on proper abattoir facilities, a functional diagnostic laboratory, and well-equipped field veterinarians. Guyana will seek to put in place these facilities and initiate meat exports, in accordance with OIE guidelines. Increased rates for slaughtering will provide the finance necessary to improve the conditions at the abattoirs and to maintain inspection programmes, and to ensure the optimal functioning of a **Meat Marketing Board**, the establishment of which is an absolute priority.

12.IV.10.9 The Government will improve the emoluments of veterinary staff, and provide transportation facilities to allow them to execute their functions. Charging for drugs and surgical procedures will contribute to the costs involved. Core funding, however, will remain the responsibility of the relevant Ministries.

12.IV.10.10 A survey of the health status of all livestock in Guyana will be undertaken as a priority measure.

Genetic Improvement

12.IV.10.11 The livestock development programme for Guyana will include an Animal Breeding Unit. The unit will support itself by the sale of breeding stock; charges for artificial insemination; and donor-financed projects.

12.IV.10.12 It is important that breeds be fully identified, breed performance be evaluated, and cross-breeding programmes be established to derive optimal performance parameters. In sheep, the Corentyne white breed has shown superiority on empirical evidence. A complete study will be carried out to measure all technical performance parameters of this breed. Other proven tropical breeds for sheep, goat and pigs will be introduced and their performance evaluated. In addition, tropically adapted breeds will be included in a national breeding programme.

Management

12.IV.10.13 Integrated farming systems will be encouraged, to allow farmers to market produce and be self sufficient in their household requirements for meat, milk and vegetables.

Livestock Research

12.IV.10.14 The following types of livestock research will be undertaken: on–farm management systems; nutrition, especially mineral/trace element requirements and the use of chemical growth and production enhancers; reproductive physiology; applied Breeding and Genetics; livestock diseases, especially as they relate to endo and ecto parasitisms; the sociology of farming groups; post harvest storage and the shelf life of product; the use of antibiotics and anti–parasitic drugs and the development of resistance thereto; the environmental impact of production systems, and production methods and their relation to inhumane animal stress.

CHAPTER 13

FISHERIES

13.I BASIC FEATURES OF THE SECTOR

13.I.1 Fisheries and the National Economy

13.I.1.1 The fisheries sector is of critical importance to the country's economy. Its importance is evident in five key areas: first, fish is the major source of animal protein in Guyana. It is estimated that per capita annual consumption of fish rose from 9 to 27 kilograms between 1980 and 1988, jumped dramatically to 45 kilogramme in 1991, and reached 59.8 kilogramme in 1998. This is more than four times the world average consumption of 14 kilogramme per year; second, fisheries contributed 6.2 percent of the country's GDP in 1997; third, Guyana's export earnings from fisheries, which were US\$20.5 million in 1994, rose to US\$41.8 million by 1997; fourth, the fishing industry employs some 4,800 people in harvesting and 5,800 in processing. Many more citizens benefit indirectly from fishing-related occupations, such as boat-building and boat maintenance activities; and fifth, the fishery sector is a significant net contributor to the Government's revenue. Indeed, the ratio of the sector's revenues to the government's expenditure on it is more than 80 to 1.

13.I.2 The Fisheries

13.I.2.1 The fisheries sector of Guyana comprises three primary components: marine fisheries, inland fisheries, and aquaculture.

Marine Fisheries

13.I.2.2 Guyana has a coastline of 432 km. and a continental shelf area of 48,665 sq. km. The average width of the continental shelf is 112.6 km. The area of the Exclusive Economic Zone (EEZ) is 138,240 sq. km. Most of Guyana's fishing occurs in the relatively shallow waters of the continental shelf. The *marine resources* exploited within the EEZ are mainly the demersal fishery resources and, to a much more limited extent, the pelagic fish resources which are to be found both over the continental shelf and toward the continental slope. Some of the demersal species, particularly prawns and shark, are showing clear signs that they are being exploited at an unsustainable rate. On the other hand, some deep slope demersal and pelagic species are underexploited in spite of their greater potential. From a commercial viewpoint, the most important stocks may be the cross-boundary species. Harvesting these stocks and ensuring that they are exploited in a sustainable manner will require joint initiatives with Venezuela, Suriname, French Guiana and Brazil.

13.I.2.3 Although, for the most part, data on the sector are estimates which are not especially consistent, the table below summarises the most reliable information on the stocks of marine resources and recent production levels.

Resource and Production Levels in the Fisheries Sector

Item	Amount
Resources	
Pelagic fish biomass	300,000 mt
Demersal fish biomass	69,000 mt
Shark biomass	3,000 mt
Squid biomass	2,000 mt
Total estimated biomass	374,000 mt
Production	
Industrial fisheries	10,160 mt
Artisanal fisheries	37,121 mt
Inland fisheries	800 mt
All fisheries	48,681 mt

13.I.2.4 All of the production from artisanal fisheries, and also a significant portion of the industrial, are taken from the demersal stocks. The pressure on these stocks is therefore intense. In contrast, the pelagic species are hardly touched, except by poachers from other nations. These data immediately suggest the need to impose sustainable management processes on demersal stocks and, at the same time, the desirability of expanding seaward to deeper waters.

13.I.2.5 The industrial fishery dominates the export market, which is concentrated on shrimp, whereas the artisanal and inland fisheries, almost in their entirety, are oriented toward the domestic market. The industrial fishery consists of 125 trawlers, five fish/shrimp processing plants, and many wharves and dry docking facilities. The ice and freezing facilities which service this fishery are owned and operated by persons within and outside the fishery subsector. The trawlers are 54 percent foreign owned. Foreign trawlers mainly exploit prawns (*Penaeus* species) with finfish as a by-catch, while locally owned trawlers mainly exploit a smaller shrimp called seabob, and finfish. The total number of trawlers has fallen by about 20 percent since the early 1980s, reflecting a decline in the prawn population, and the enforcement of a management decision not to increase the level of the trawling fleet.

13.I.2.6 The trawler fleet is classified in terms of their operations (prawns, seabob/finfish, finfish). The prawn vessels operate as a limited-entry fleet with the upper limit being eighty vessels. The seabob/finfishing

fleet's upper limit has been set at 30 vessels. A smaller number has been established for the seabob/finfishing fleet because of uncertainty about the seabob resource, and because of the fact that these vessels operate within the breeding and nursery grounds of the marine fishery. Local trawler owners and operators have all moved into seabob/finfish thus ignoring the upper limit for seabob trawlers. The Fisheries Department is reviewing catch data and is in discussion with industry to change the vessel limits to 75 for prawns and 45 for seabob.

13.I.2.7 Trawlers catching prawns take on board finfish and are required to land 15 mt of this by-catch each year. However, dumping of by-catch at sea is still a widespread practice.

13.I.2.8 Some trawlers, especially those configured for seabob, target finfish when seabob is not in abundance. While the stress on the prawn resource has been evident for a number of years, seabobs too are now being more fully exploited, and several new seabob processing plants have been opened. Moreover, the seabob/finfish trawlers have been operating increasingly close to shore, leading to a greater incidence of conflict between the industrial and artisanal fisheries.

13.I.2.9 In addition to the trawlers, fishing boats known as handliners, which fish at depths between 120 m and the edge of the continental shelf, target snapper and grouper. It was recognized that there was room for a limited expansion of this fishery in view of its potential sustainable yield, with production oriented toward export and the developing tourist markets. Accordingly, in 1997/1998, ten foreign vessels were licensed, and local fishermen switched to the use of traps and converted the larger artisanal vessels to fish for snapper. There is now need to control the mesh size of the traps, as well as the poaching by foreign vessels in the snapper/grouper areas.

13.I.2.10 Small scale or artisanal fishery is not only an important source of food, in both rural and urban areas, but it is also increasingly significant as sources of employment, income and foreign exchange. This type of fishery experienced rapid growth, both in numbers of participants and volume of landings, up to 1992, but since then production has leveled off. This is probably due to a reduction in the volume of fish resources. Indeed, there are increasing complaints by drift seine fishermen that they are obliged to spend longer periods at sea, use longer nets, and fish farther from shore to maintain the levels of their catch.

13.I.2.11 There are about 4,500 small scale fishers. Of these about 1,000 are boat owners. Sixty to seventy percent of the boat owners are members of fishermen's cooperatives which acquire and sell fishing requisites to their members. Activity in the inshore artisanal fishery is pursued exclusively by Guyanese, who have been experiencing difficulties in obtaining fishing licences to fish in the waters at the mouths of the Corentyne River and off the Suriname Coast.

13.I.2.12 The development of onshore infrastructure (wharves, ramps, workshops, fuel depots, requisite shops, ice machines, and fish storage bins) at eight sites along the coast, financed by the Government with assistance from CIDA and the EEC, has been completed. Five of these complexes have been leased to fishermen's cooperatives. However, poor management and the lack of capital hinder the operation of most of them.

Inland Fisheries

Subsistence fishery

- Freshwater fishing is conducted in rivers, creeks, lakes, reservoirs, canals, and in savanna areas where the seasonal increase in rainfall gives rise to large expanses of seasonally flooded lands. This type of fishing is influenced by the down period in agriculture and the unavailability of other economic activities. For example, in the sugar estate areas the intensity of fishing

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varies adversely with the harvesting of sugar cane and rice. Freshwater fishing is undertaken with small, flat-bottomed, dory type vessels and cast nets, seine or handlines.

- The limited data available indicate that most inland fishing is carried out by Amerindians, although non-Amerindians fish in inland waters near the coast and in the vicinity of logging and mining communities situated in the interior of the country. At present, the effort is largely directed at subsistence fishing, although a few fishermen participate in small-scale commercial fisheries based on inland waters.
- The country's flowing waters are the "blackwaters" typical of rain forest regions. They are characterised by an acid or very acid reaction and a low level of dissolved minerals. Their level of biological production is low unless the waters are retained in lakes or canals, where their nutrient status and productivity tend to rise. Many of these waters do, however, support a diverse population of fish, which often reach large sizes. This apparent anomaly between an environment low in productivity and a relative abundance of catchable fish could be due to the very low level of exploitation to which the fish in these waters have been subjected until recently. Indeed, the steady increase in fishing pressure has already brought about a decline in the sizes of some of the fish that have been caught. **The implication is that the resource cannot sustainably support a yield much above that which meets subsistence requirements.**
- **However, areas that seasonally alternate between dry savanna grasslands and a shallow floodplain caused by heavy rainfall and rivers overlapping their banks usually have a high level of fish production. This is caused by the abundance of nutrient materials absorbed into the water from the dry lands when the flooding occurs. There are some forty or fifty thousand square kilometres of these seasonally inundated floodplains in the southwestern areas of the country, especially in the Rupununi, and a potential harvest of up to 100 tonnes per square kilometre may be achievable.**
- There is also a limited amount of harvesting, especially of crab, in intertidal and shallow sub-tidal areas along the coast, without the use of vessels. The main crab species taken are the blueback or blue sheriga (*Callinectes bocourti*), the bunderi (*Cardiosoma guanhami*) and the red sheriga (*Portunus rufiremus*). Better access to cold storage or processing facilities could add considerable value to this fishery.
- There are many informal reports and a limited amount of systematic data to support the contention that water pollution and habitat degradation, particularly from mining and forestry activities on the river systems of the interior, are having a negative impact on the spawning and growth of many freshwater species.

Ornamental fish industry

- There is a small but active trade in ornamental fish. In 1997 over five million of these fish were exported, with a value of G\$36 million.
- Collectors catch ornamental fish mainly in riverain areas, utilising craft powered by outboard engines, and varying types of fishing gear (dragnets/seines, dipnets, pin-seines). Fish mortality rates are very high.
- It should be noted that some of the more valuable species are now being cultured in the U.S.A, and that this development may have a long-term impact on the demand for ornamental fish from countries like Guyana. Furthermore, some consumers in overseas markets are demanding that strict environmental standards be followed in the harvesting of ornamental fish. This also may have a negative impact on the industry's development.
- **Nevertheless, significant opportunities for exporting ornamental fish still exist, provided that the quality of catch is improved, suppliers move into pond production, and exports are made directly to Japan and the EEC. It is thought that some of the present exports to the U.S.A. are re-exported to those countries.**

Aquaculture

13.I.2.13 Although activities in aquaculture first started in Guyana in the 1950s, the development of the industry has been slow. It has been retarded by the lack of investment capital; inadequate technical skills; the utilisation of inappropriate technologies, equipment and inputs; and the almost total absence of research and training. Moreover, there has been very little foreign investment in the industry since investment prospects generally have been better elsewhere in the region.

13.I.2.14 Two forms of aquaculture are basically practised in the country: traditional extensive brackish

water culture, and freshwater pond culture. Brackish water farms operate as extensive polyculture systems utilising the existing sluices and dams from the sea defence structures which control the exchange of water at high tide. In the empoldered areas, farmers often construct their own dikes and sluices to regulate the flow and exchange of water within individual ponds. In most cases, the trapped fish and shrimp grow to marketable sizes without any additional inputs. Brackish water culture occurs mainly in the swamps along the Atlantic Coast of the Corentyne. The average size of a farm is eleven hectares. *Tilapia mossambica*, *Tilapia nilotica* and, to a limited extent, *Hoplosternum littoral* (catfish), are the main species cultured in Guyana, in freshwater farms.

13.II ISSUES AND CONSTRAINTS

13.II.1 Issues

Sustainability

13.II.1.1 The key to the development of any type of fishery is long-term sustainability. If exploitation rates are not controlled, the continuous contribution of fisheries to GDP, exports, employment, and nutrition, will be significantly jeopardised. Conservation and management measures to control harvesting levels and protect stocks are therefore the highest priorities in the development of a strategy for the sustainable growth of Guyana's fisheries sector.

13.II.1.2 Another basic area of concern, which has become a bottleneck for the development of the artisanal fishery, is the inadequacy of facilities for processing and cold storage, and the existing deficiencies in quality assurance.

Inland fisheries

13.II.1.3 The most pressing issues in this sector are (i) the need to protect the waterways from environmentally destructive practices associated with the expansion of mining and forestry operations, and (ii) the development of potential inland fisheries and aquaculture.

13.II.1.4 Pollution from mining activities and the use of chemicals and pesticides threaten these resources. Moreover, while fresh water stocks are relatively abundant in many areas, the indications are that their reproductive capabilities are limited. No effort should therefore be made to expand harvesting levels before the facts concerning their stocking and rates of reproduction are ascertained. The current and potential fisheries activities in hinterland communities must therefore be carefully examined; and appropriate development options, including fish stocking and aquaculture initiatives, be identified. Moreover, with six months of rain and six months of drought in inland areas, there is a need to improve methods for preserving fish to stretch the food supply through the year.

13.II.1.5 There is pressure to expand the harvesting of certain ornamental fish from the interior water systems. Concerns about stock conservation and a lack of in-depth knowledge of the market dynamics for ornamental species demand a cautious approach even here. With proper research and development, there may be potential to produce ornamental fish by means of aquacultural methods.

Aquaculture

13.II.1.6 The aquaculture industry is still in its infancy. However it has significant growth potential both for the production of low cost food supplies, and for processing and export. **Aquaculture is the sub-sector of**

fisheries with the greatest potential for the expansion of production, the creation of employment and the generation of foreign exchange earnings. Very significant potential exists in both freshwater and brackish water aquaculture activities.

13.II.1.7 Although in some coastal areas the soils are acid – sulphate and thus inappropriate for aquaculture, many of the natural conditions that are required to raise shrimp and fish already exist in Guyana. The existence of a natural marine shrimp industry to provide post–larval shrimp to the ponds would be an important advantage in the early days, before the construction of hatcheries becomes feasible. Moreover, the infrastructure is already in place for the processing, marketing, and handling of shrimp and fish.

13.II.1.8 An in–depth investigation will be required to determine the overall economic potential for fish and shrimp culture, and to decide on the areas that might be suitable. However, it is already evident that development options include the more intensive use of creeks, canals and polder lands for food production for local markets, the introduction of new species (particularly shrimp), and the use of aquacultural techniques to produce ornamental fish for export. These investigations should be embarked upon as soon as possible.

13.II.1.9 The few currently operating tilapia culture facilities in Guyana are producing only 20 tonnes from 20 ha of ponds and employ perhaps 20 Guyanese. With a transfer of technology, a propitious policy environment, and entrepreneurship, it is conceivable that by the year 2004 Guyana could have 500 ha of ponds producing 2,500 mt of freshwater finfish annually, for the local market. This would imply approximately 100 freshwater farms and employment of about 1,000 Guyanese. By the year 2010 the area of ponds could be doubled, with corresponding increases in production and employment rates.

13.II.1.10 The only brackish water aquaculture currently being undertaken in Guyana consists of the operations along the Corentyne Coast. Those operations are extensive in nature and rely on natural tidal flows and wild post–larval shrimp and inputs of water and seed. The yields obtained from these operations are low, at only 0.2 mt per hectare per year.

13.II.1.11 A sustainable intensification of brackish water aquaculture in Guyana can occur only if the seed for the operations comes from a hatchery as opposed to a collection process from the wild. Of the 725 square miles of coastline surveyed in 1990 by the Department of Fisheries, 284 square miles were found to be suitable for brackish water aquaculture. If only a portion of this area is developed in a semi–intensive way, the potential for success is excellent. By the year 2004 it is conceivable that 2,000 hectares will be in semi–intensive operation, producing 4,000 mt of cultured shrimp from 200 farms and employing 2,000 Guyanese. It is envisaged that the operations would double in size, output, and labour absorption by 2010.

13.II.1.12 The prerequisites for the development of the sector are more applied research and development, greater levels of investment and modern technology, and more effective training and extension work with industry. There is an urgent need for the formulation of a regulatory framework that takes adequate account of environmental constraints, particularly in the foreshore areas.

Institutional Capabilities

13.II.1.13 The compelling paradox of Guyana’s fisheries is that during the period of strong industrial growth, the Government’s capacities to regulate and manage the industry were sharply reduced. Indeed the Government of Guyana has not been able to offer salary levels that are competitive with the private sector. As a result, qualified personnel currently occupy only 9 of the 32 professional and technical positions that are available in the Department of Fisheries. Today, with the rapid expansion of industry and the concomitant danger of over–exploitation, it is imperative that the Government’s ability to manage the sector and to plan and control its development be enhanced.

13.II.1.14 The Department of Fisheries should be provided with the budget and staff to collect and analyze data, regulate and monitor the domestic fisheries, promote aquaculture and other development options, provide adequate extension support to the fishermen's cooperative societies, impart the training that the industry needs, and enforce Guyana's sovereignty within its territorial waters.

International Fisheries Management

13.II.1.15 Current stock assessments suggest that the most important commercial fish stocks in Guyana's Exclusive Economic Zone are cross-boundary stocks. Effective management and stock conservation will therefore require cooperative initiatives with the governments of Suriname, Cayenne, Brazil, Venezuela, and Trinidad and Tobago. Indeed, there are already problems with illegal foreign fishing, and over-the-side sales within Guyana's EEZ. The expansion of surveillance and enforcement activities should be carried out on a regional basis, with close cooperation and communication among the governments involved.

Cooperatives

13.II.1.16 Fishermen's cooperative societies have played a crucial role in the mobilisation of artisanal fishermen, in education and training, and in the maintenance and management of fish landing sites. Through programmes which have been supported by the Canadian International Development Agency (CIDA), to improve landing sites, and to establish a line of credit to purchase fisheries equipment, the cooperatives have contributed significantly to the growth of finfish exports.

13.II.1.17 The cooperatives should provide more services to their members and their communities in marketing and processing activities, and in fisheries management and conservation. They should develop their capacities to finance their own expansion, possibly through joint ventures with other investors, to improve their organisational and management practices, and to identify and correct their weaknesses. To accomplish these goals they will need strong support from extension workers of the Department of Fisheries and the Cooperatives Department.

13.II.1.18 To play a role in the improvement of marketing, both for export and for domestic sales, it is essential that they obtain cold storage equipment.

Marketing and Post-harvest Processing

13.II.1.19 Currency devaluation, competitive wage levels and a well-developed processing infrastructure have all contributed to the growth in sales of processed fish products. With declining prawn landings, the main prospect for export growth is now finfish from artisanal harvesters. There is also potential for the development of new pelagic fish products. Quality improvement also will be one of the keys to growth.

13.II.1.20 Limited cold storage and processing capabilities in the artisanal sector make it difficult for finfish exporters to expand their markets.

13.II.1.21 A lack of information and expertise related to international fish markets also inhibits the development of cottage industry exports.

13.II.1.22 Over-capacity in the industrial sector and under-capacity in the cottage industry processors are important issues to be addressed. There is also a need for improvements in market intelligence and quality control.

13.II.2 Constraints

General

- 13.II.2.1 Some major commercial stocks are being exploited near or above maximum sustainable yields.
- 13.II.2.2 No arrangements are in place to manage or protect trans–boundary stocks.
- 13.II.2.3 The fisheries management system in Guyana is inadequate.
- 13.II.2.4 There are resource constraints in both the Department of Fisheries and the Guyana Coast Guard. Neither agency has an adequate surveillance vessel.
- 13.II.2.5 The fishing gear that is currently being utilised is inadequate and leads to excessive amounts of by–catch and the destruction of stocks of juvenile fish.
- 13.II.2.6 The mangrove habitat is being destroyed, thus reducing breeding grounds for shrimp and other species.
- 13.II.2.7 Guyana’s post–harvest infrastructure is underdeveloped throughout the country.
- 13.II.2.8 Industrial fishermen utilise outmoded technologies. They are consequently high–cost operators.
- 13.II.2.9 Very little market information is available in the artisanal sector.
- 13.II.2.10 There are very few management skills in the artisanal sector to enable its members to conduct self–sustaining businesses.
- 13.II.2.11 Our inland waterways are being damaged by environmentally destructive practices.

Constraints in Aquaculture

- 13.II.2.12 Operators are unable to obtain suitable freehold land or to secure leases of long duration.
- 13.II.2.13 Capital costs in the industry are high.
- 13.II.2.14 There is no coherent policy to promote investment in the sector.
- 13.II.2.15 There is little or no infrastructure to facilitate research, development and extension activities by the Department of Fisheries.

Institutional Constraints

- 13.II.2.16 The staff of the Department of Fisheries is undermanned, undertrained and underqualified in view of the duties they are asked to undertake.
- 13.II.2.17 The structure of the Department of Fisheries is archaic.
- 13.II.2.18 The facilities for data management, research, and general administration are most inadequate.
- 13.II.2.19 There is a dearth of qualified human resources to undertake research and extension activities in the Department of Fisheries.

13.III THE STRATEGY

13.III.1 Achieving Sustainable Production Levels

Industrial Fishery

13.III.1.1 Shrimp trawling in waters shallower than 18 fathoms will be prohibited in order to reduce the damage to the juveniles, increase the total sustainable yield, and minimise conflicts with artisanal fishermen.

13.III.1.2 Regulations on turtle excluding devices (TEDs) in all trawlers, will be enforced, to protect diminishing turtle populations and to safeguard Guyana's seafood exports to the U.S.A.

13.III.1.3 A programme of seasonal closures of the prawn fishery will be instituted during the approximately three months of most intensive recruitment of the species, for selected locations initially, so that the effects of the programme may be studied and properly evaluated.

13.III.1.4 The present monitoring system (vessel logbook and plant logbooks) for seabob and prawns will be improved and implemented to provide accurate information on catch.

13.III.1.5 A regional approach to management of the prawn resource will be encouraged and promoted. Guyana will pursue the fullest possible participation in the activities of the proposed Western Central Atlantic Fisheries Commission (WECAFC) Scientific and Advisory Committee for the Management of the Shrimp Fisheries of the Guyana–Brazil Management Area on Shrimp.

13.III.1.6 A study to determine the areas of high adult abundance and the level of seasonality of the seabob resource will be undertaken. This will be done with a view to reducing conflicts with artisanal fishermen and damage to nurseries and juveniles, and to determine whether a closed season is needed for seabob.

13.III.1.7 The annual fees for trawler licences will be significantly increased to reflect the true value of the resources and discourage their overexploitation. The licences will be made to be fully tradeable among boat owners.

13.III.1.8 The prawn trawler fleet will be rationalised by reducing the number of prawn trawler licences. Studies of the resource base will be conducted at intervals of three years to determine the specificities of the rationalisation.

13.III.1.9 After reviewing existing information to determine the appropriate size of the trawler fleet for demersal finfish, a limited entry approach will be introduced.

13.III.1.10 Mesh size and regulations for finfish trawling will be introduced in order to reduce the catch of juveniles.

13.III.1.11 An economic study of the industrial fishery will be undertaken to facilitate the establishment of an economic data base for use in bio–economic modeling and the continuous determination of suitable licence and voyage fees.

13.III.1.12 For large pelagic fisheries, joint ventures will be facilitated to encourage commercial investment, particularly for the deep slope fishery, in order to promote technology–transfer to local fishermen. This will be part and parcel of the general financial incentives to be provided to investors in all sectors of Guyana's

economy. However, the model based on factory ships ("mother ships") will not be pursued, because experience has shown that it does not bring significant benefits to the host country, but rather to the country of origin of the large ships. Moreover, it diminishes the amount of the exploitable resources that are left for local fishermen.

13.III.1.13 Given the highly migratory nature of the larger tunas and related species, management linkages with international regulatory bodies such as ICCAT will be developed, in order to access vital information to manage the fishery properly.

13.III.1.14 New regulations (licences, data requirements, restrictions on gear and mesh sizes, etc.) will be formulated for the pelagic fishery.

Artisanal Fishery

13.III.1.15 The registration and licencing of vessels will be made comprehensive. Gear will also be registered, by type. These actions will be carried out largely through collaboration with the Fishermen's Cooperatives.

13.III.1.16 The general strategy to make available investment funds for micro-enterprises will embrace fishermen who are not owners of their boats and wish to purchase them.

13.III.1.17 Controls will be established over Chinese seines, which are the most damaging nets to juveniles, by registering all of them and phasing down the number that are permitted. Concomitantly, closed grounds and seasons will be established.

13.III.1.18 Minimum mesh sizes will be established and enforced for pin seines, drift nets, and nearshore nylon gill nets. The use of such nets will be restricted to specified fishing grounds, perhaps on a rotating basis, after adequate studies of the options are carried out. The hook sizes of Cadell lines will be regulated to ensure that only larger sizes of fish are targeted.

13.III.1.19 Strengthened mechanisms will be established for dialogue with artisanal fishermen on sustainable management issues, emphasis will be on the role of the Fishermen's Cooperatives.

13.III.1.20 Limits will be placed on landings of shark and possibly mackerel, their levels to be established as a result of scientific studies of the resource.

13.III.1.21 A mangrove protection and management plan will be formulated in consultation with the concerned coastal communities, and implemented with their cooperation.

Monitoring and Surveillance

13.III.1.22 Arrangements will be made to assist in augmenting the resource of the Coast Guard by paying them fees for supplying services in the offshore, inshore and inland fishing zones. These service fees will be taken from the increased licensing charges to be levied on fishermen.

13.III.1.23 A Fisheries Surveillance and Enforcement Coordinating Committee will be established with suitable representatives of the Department of Fisheries, the Coast Guard, the Guyana Defence Force, the Ministry of Foreign Affairs, the Customs and Excise Department, and the Marine Police. This Committee will plan, supervise and evaluate surveillance and enforcement operations, coordinate the development of

legislation and regulations, and oversee the generation of adequate operational budgets for fisheries surveillance and enforcement operations through interdepartmental cooperation and sharing of resources.

Post-harvest Management (Processing and Marketing)

13.III.1.24 A feasibility study of fishmeal processing and marketing, both domestically and internationally, will be carried out and its results made available to the interested public.

13.III.1.25 Investment in cold storage facilities and ice making capacity for the operating fishport complexes and Fisherman's Cooperatives will be encouraged through the fiscal measures that are described elsewhere in this NDS.

13.III.1.26 Access to freehold land for cottage processing facilities will be improved through the land tenure strategies that have been put forward in this NDS.

13.III.1.27 Procedures for approvals and licensing of processing plants will be simplified and speeded up.

13.III.1.28 A national export quality control system will be established with effective mechanisms for its monitoring and enforcement.

13.III.1.29 Rules and procedures for the export of fish products will be simplified.

13.III.1.30 Market intelligence services for the fishing industry will be expanded.

13.III.1.31 Training for the proper handling of fish for quality control will be provided to crews, onshore handlers, cottage processors, and marketing agents by the Fisheries Department. Suitable fees will be charged.

13.III.1.32 Trade missions will be undertaken to selected export markets, for all types of fish including ornamental fish.

Inland Fishery

13.III.1.33 Methods of preservation, such as salting and smoking, will be demonstrated in the rural floodplain and hinterland areas, to preserve fish during periods of glut, for sale during leaner periods. Priorities will be given to Amerindian communities.

13.III.1.34 Discussions will be developed with the principal fishing communities of the hinterland, so that they may participate in the development of operational plans for eliminating the use of explosives and poisons in fish harvesting, and for enforcing regulations on minimum mesh sizes in nets. NGOs will be urged to assist in these efforts, and the rural women's networks will be utilised to the fullest in this undertaking.

13.III.1.35 A comprehensive assessment of inland fish resources and habitat will be carried out.

13.III.1.36 With the assistance of national and international NGOs, and the Amerindian Studies Unit at the University of Guyana, a survey will be undertaken of Amerindian involvement in fishing. Particular attention will be paid to problems and prospects.

13.III.1.37 A feasibility study for the development of a sport and recreational fishery in inland waters, that is linked to the overall development strategy for ecotourism, will be carried out.

13.III.1.38 A joint commission which will be formed with representatives of the Department of Fisheries, the Guyana Geology and Mines Commission, the Environmental Protection Agency, Amerindian leaders, and concerned NGOs, will be requested to develop regulations and procedures for controlling and mitigating the impact of mining on inland fish habitats, with special emphasis on the effects of missile dredges and alumina wastes.

Aquaculture

13.III.1.39 The land policies that are put forward in this NDS will be applied to aquaculture production.

Suitable areas of land for the conduct of aquacultural activities will be identified, and arrangements will be made for that land to be held in freehold or in 99-year transferable leases.

13.III.1.40 Guyana will seek to join the Commission for Inland Fisheries of Latin America and the Caribbean (COPESCAL). Membership in that body will put Guyana in a position to share in and benefit from the experiences of other countries in Latin America and the Caribbean.

13.III.1.41 Two National Aquaculture Research Stations will be constructed, one a Freshwater culture Research Centre at Mon Repos, and the other a Brackish water Fish and Shrimp Research Centre, on a site still to be identified, but possibly in the North West.

13.III.1.42 Demonstration farms for both freshwater and brackish water culture will be established, both to improve deficiencies in technology transfer and to enhance the capacity of the Department of Fisheries to provide extension services.

13.III.1.43 The capacity of the extension services unit of the Department of Fisheries will be increased to include the delivery of fingerlings to interested parties as well as the tendering of advice on various aspects of aquaculture. A special extension subunit will be created to work with Amerindian communities in both freshwater culture (in the hinterland) and brackish water culture (in the North West).

Institutions

13.III.1.44 The Department of Fisheries will be reorganised and reconstituted as an autonomous Guyana National Fisheries Commission.

13.III.1.45 The Board of Directors for the Commission will be a Fisheries Advisory Board, and will comprise as follows:

- A representative of the Minister of Agriculture
- The Permanent Secretary of Agriculture
- A representative of the Minister of Finance
- A representative of the Coast Guard
- A representative of the Environmental Protection Agency
- A representatives of Fishermen's Cooperatives
- A representative of the industrial processors

- A representative of the cottage producers
- A representative of the small exporters

13.III.1.46 The Chief Fisheries Officer will be an *ex officio* member of the Board.

Other Strategies

13.III.1.47 The Government will promote initiatives with the Governments of Venezuela, Suriname, French Guiana, and Brazil to regulate and control fishing in transboundary areas.

13.III.1.48 A certificate programme in fisheries management and quality assurance will be initiated at the University of Guyana.

13.III.1.49 The Department of Fisheries will develop a programme, and oversee its implementation, for the improvement of working conditions for women in fish processing plants and markets.

CHAPTER 14

FORESTRY

14.I BASIC FEATURES OF THE SECTOR

14.I The Forest Lands

14.I.1 About 65,000 square miles (168,000 km²), or more than 75%, of Guyana's total land area, are forested.

14.I.2 Some 13.58 million hectares of the country's total forest area lie within the gazetted State Forest boundaries, where all commercial timber exploitation occurs. There have, however, been excisions from this block of land for Amerindian communities, the Iwokrama Rain Forest Reserve, and mining leases.

14.I.3 Although many of the plant and animal species which abound in Guyana's forests are as yet unidentified, it is known that the forests are a most significant reservoir of biodiversity. In addition, the forests provide important services to the country's inhabitants: they protect the soil from erosion; they regulate and purify the nation's water supplies; and, perhaps of greatest importance, they ensure environmental stability.

14.I.4 In addition to the services which the forests offer, and the wood which they yield for housing and industry, they are a source of non-timber forest products, the commercialisation of which could also greatly assist in the country's social and economic growth and development. Indeed, the forest resources of the country, taken as a whole, can play an important role in transforming and developing the relatively uninhabited hinterland of Guyana. This is especially so because the forest industry sector possesses characteristics which are capable of providing much of the economic stimulus which Guyana requires at this stage of its development. For example, the capital requirements of the sector range from very low to very high; its technological requirements range from very simple to very sophisticated; and individual forest industries may be either labour- or capital-intensive. Forest industries can, therefore, be accommodated at any stage in the country's social and economic evolution, and are amenable to successful investment by both local and foreign entrepreneurs, and by both the moderately and well endowed financiers.

14.I.5 Furthermore, the amenities which the forests provide, and the richness of their flora and fauna, are important for the enhancement of ecotourism, recreation, and scientific research.

14.I.2 The Forestry Sector Today

Forestry's Contribution To Gross Domestic Product

14.I.2.1 Before 1994, when the effects of the lease granted in 1992 to the Barama Company Limited began to be felt, the contribution of the forests to the country's economic development was negligible. Between 1988 and 1993 forestry contributed just over 2 percent to Guyana's Gross Domestic Product, (GDP). In 1994, however, it jumped to 4.4 percent, and 1999 saw the sector's contribution to the GDP at nearly 8%, the highest level ever attained in the country's history.

Log Production

14.I.2.2 Since 1987 there has been a significant increase in log production from Guyana's forests. The intensity of this increase rose markedly in 1994, when log production reached 420,000 cubic metres and continued through to 1997, when it had grown to 513,000 cubic metres. It is interesting to note that the production of chainsaw lumber, which had been negligible up to the mid-1990s, rose steeply to 41,823 cubic metres in 1995. This kind of production dropped, however, to 38,250 cubic metres in 1996 and to an even lower amount, 32,375 cubic metres, in 1997. Although it is too early to be definitive, it seems that chainsaw lumber production reached its peak in 1995 and is now significantly declining.

Other Products

14.I.2.3 The felling of Manicole Palm (*Euterpe edulis*) has been reasonably stable between 1994, when production was 5,946,633 stems, and 1997 when 6,625,749 stems were produced. However, there has been a downward trend in Mangrove Bark production over the five-year period between 1993 to 1997. In 1993, 73,400 lbs. were produced. Output fell to 23,950 lbs in 1996 and nothing at all was produced in 1997.

14.I.2.4 The felling of bulletwood trees, from which balata is produced, was restricted in the 1940s to enable a survey to be made to ascertain the frequency of occurrence of the species.

Export Volume and Value

14.I.2.5 Plywood exports assumed increasing importance in 1993, at which time the products of the Barama Company came on stream. In 1993 plywood accounted for only 27 percent of the total volume of timber exports and 39 percent of the total value of these exports. By 1996, however, plywood's contribution to this sub-sector had jumped to 70 percent of its volume and 76 percent of its value. However, because of depressed market conditions in 1997, plywood's share in the exports of wood products dropped sharply to 37 percent of volume and 57 percent of value, and in 1998 it decreased even further. Plywood remains, nevertheless, the biggest single contributor to the country's export of wood products.

Employment

14.I.2.6 Employment in the forestry sector increased significantly in the 1990s. Between 1992 and 1996 employment in the sector rose from 11,412 to 15,275. In 1996, 7,450 persons (48.7 percent) were employed in logging, 5,100 (33.4 percent) in sawpits and sawmills, 1,750 (11.5 percent) in plywood manufacturing, 800 (5 percent) in Manicole Palm production and the remainder in other areas such as charcoal and mangrove bark production. Employment in the sector in 1997 was around 16,000 and, by the end of 1998, total employment in forestry had reached 19,000.

14.I.2.7 The largest increases in employment were in plywood and manicole palm production. This is understandable, due to the fact that two foreign companies (one in each industry) began production in 1993 in these areas. As a result, the plywood industry's absorption of labour grew from 80 persons in 1992 to nearly 2,000 in 1999, while that of the manicole palm industry rose from zero in 1992 to about 1,000 in 1999.

Industry Structure and Trends

14.I.2.8 The forest industries sub-sector comprises mainly logging and sawmilling operations. These enterprises may be divided into two groups:

- (i) the low capital, labour-intensive activity of small entrepreneurs who sell logs to sawmillers; and

(ii) the medium–to large–scale, capital–intensive logging operations of integrated firms, with their own sawmills and ancillary equipment, in which modern, heavy–duty logging and road building equipment is used.

14.I.2.9 In 1999 there were 85 active sawmills, 70 of which were old, inefficient and required heavy recapitalisation. Not surprisingly, their product recovery rate is low, being on average about 25 percent of capacity productivity. The quality of lumber produced is often poor, but relatively expensive.

14.I.2.10 Although lumber production from formal sawmills has been falling steadily since the late seventies, much of the absolute drop in the domestic consumption of formal lumber has been offset by the rapid increase in the production of chainsaw lumber.

14.I.2.11 Because there are no seasoning or preservation facilities at most of the mills, there has been a definite trend towards the substitution of lumber by imported steel and cement in new construction. The implications of this trend are significant, since they reduce the productivity of the housing sector and increase the country's expenditure on foreign exchange.

Foreign Investments

14.I.2.12 The launching of the plywood operations of the foreign–owned Barama Company in the early 1990s heralded what, in future years, may be seen as a decisive break with the exploitation patterns of the past. The first, and perhaps most significant, difference is the fact that it is not a Agreenheart operation." The species of interest are baromalli (*Catostemma fragrans* and *C. commune*). Although plywood manufacture, utilizing mainly baromalli, is not new to Guyana (a small plywood plant with an installed capacity of 5,000 cubic metres per annum having been in operation since the 1980s) the scale of the Barama Company's operation, the integrated nature of the exercise, the relatively high quality of its product, and the sophistication of its equipment make its activities a most unusual and positive development in the sector. At full production the Barama mill will have an output of nearly 240,000 cubic metres per annum. This will mean an almost phenomenal increase in the consumption of baromalli, and other peeler species that were hardly significantly utilized in the past. The remarkable surges in export revenues from plywood manufacture, due almost entirely to Barama's production, have already been emphasised.

Chainsawn Lumber Production

14.I.2.13 A recent trend has been the extensive use of chainsaws for the sawing of logs into lumber at the stump. Although chainsaw lumber operations lead to less environmental damage than conventional logging, the large number of individuals involved and the scattered nature of their activities make monitoring difficult. Moreover, the ability of the Guyana Forestry Commission effectively to manage the forests in the areas in which such conversion operations are prevalent is severely limited. In addition, there is strong evidence that large scale timber wastage occurs in the process. This wastage is compounded by the often poor quality of lumber produced and by the additional costs which are of necessity incurred during the process of re–manufacturing.

Furniture and Millwork

14.I.2.14 There are about ninety joinery establishments in Guyana. These, together with those micro enterprises that produce lumber, millwork, lianes (nibi and kuffa articles), crafts, charcoal and shingles, are fast becoming a most significant source of income and employment. Indeed, in recent years, there has been growing interest in the export of furniture and millwork to the Caribbean, Europe and the USA, and important investments have been made in equipment, technology and training to ensure the accurate and proper finishing of furniture and furniture components. Furniture and millwork exports represent one of the most

exciting possibilities for investments in the forestry sector.

Sawmilling

14.I.2.15 The domestic market for lumber has historically been very important for the forest industry. So much so that over the past two decades, the domestic consumption of sawnwood has consistently absorbed well over 80 percent of the country's total production. However, the traditional sawmilling industry is losing its share of the market to chainsaw lumber, and wood in general is being replaced to some extent by imported cement. Indeed, both total lumber production and the domestic consumption of lumber from formal sawmills have shown a steady decline since the mid-1970s.

Conclusions about the Forestry Sector Today

14.I.2.16 It cannot be too strongly emphasized that the very much increased contribution which the forestry sector is making to the country's Gross Domestic Product is due almost entirely to the introduction of foreign investment, especially by the Barama Plywood Company. It is perhaps true to say, therefore, that much of the newly found buoyancy of the sector depends upon that Company. This cannot be considered a felicitous circumstance. It is therefore essential that investments in the sector be not only increased, but that the sources of such investment be diversified. Moreover, the dependence on only a few export markets ought to be more closely examined.

14.II ISSUES AND CONSTRAINTS

14.II.1 Outmoded Harvesting Practices

14.II.1.1 Outmoded harvesting practices, which recover an insufficient number of timber species and which require frequent entries to each forest site, adversely affect both the economic and environmental sustainability of the forestry sector. Not only are logging costs inordinately high, but frequently the ecological conditions that are necessary for regenerating the required forest species are not created. Moreover, the often rapid incursions into particular forest areas increase the intensity of damage to the forests. The basic requirement is for harvesting to be based on forest management plans which at one and the same time include not only the optimisation of extraction but also the conservation of the forest ecosystem.

14.II.2 Low Levels of Efficiency

14.II.2.1 Low levels of efficiency in the utilisation of equipment, facilities, personnel and timber are common. Because the royalties that have been charged on felled trees have remained relatively low over the years, many firms have been financially successful, even when operating with very low levels of technical and economic competence. In addition, the scale of Government's interventions in marketing has discouraged market development by the private sector. Furthermore, the relative unavailability of foreign exchange for more than two decades has prevented private investors from upgrading equipment and expanding facilities.

14.II.2.2 The tolerance of Guyanese for low-quality goods has also contributed to the sector's inefficiency. Historically, the average sawmiller was able to sell almost anything which was produced, because of this somewhat uncritical acceptance of shoddy material, and because there are neither formal building codes nor official standards for the timber which is sold locally in Guyana. There was therefore no economic incentive for the production of high-quality goods. Today, however, the traditional producer is beset by several

problems: logging costs have increased because timber is not as easily accessible as in the past; much of the equipment used is obsolescent; and most of the personnel are untrained. As a result, production costs have increased. On top of all this, the traditional producer is now obliged to compete with chainsaw lumber producers who, even though they recover a smaller volume of the wood from the trees than conventional timber producers, are more competitive because of their lower overheads. It is not surprising, therefore, that the profitability of traditional timber products has eroded over the years. Although there has been a recent upswing in the production of lumber from sawmills, it is perhaps true to say that it would be difficult to sustain this apparent recovery if steps are not taken to modernise the industry, and enhance the quality of operations through training and the development of value-added capability.

14.II.3 Lack of Skills

14.II.3.1 It is generally agreed that although in recent years there has been some improvement, there is still a critical shortage of skilled human resources in the Guyana Forestry Commission. It is also quite evident that the need for skilled personnel is equally critical in the private timber industry itself.

14.II.3.2 The types of training required both by the GFC and private producers are many and varied. Training needs of the GFC relate not only to its major functions as guardian and manager of the forest estate, but also to its role in the conservation of ecosystems and the regeneration of the forest estate. The training requirements of the forest products industry lie in the areas of business management, forest inventoring, forest harvesting, manufacturing and marketing.

14.II.4 Unavailability of Capital

14.II.4.1 Capital, in the amounts required for investments in forest harvesting, manufacturing and marketing, and under the longer terms and conditions that are essential for forest industries, is not available locally. The undeveloped nature of local equity markets coupled with short, non-exclusive and non-tradeable leases, makes it difficult for local firms to use their cutting rights to attract joint venture capital. Loans for working capital and export financing are difficult to obtain from local banks.

14.II.5 Non-timber Products and Services

14.II.5.1 It is important to stress the multiple functions of our forests. They yield not only timber, but also recreational values and non-timber products. Indeed, it should be noted that Amerindians have traditionally used the forests to produce a variety of goods such as plants for medicines, fibres and fruits. This knowledge should provide them with important opportunities for development in ways that are socially and culturally attractive to them. It is surprising that traditional forest producers have not yet taken advantage of the multiplicity of uses of the forests which have been leased to them and have not attempted to combine timber production with, say, the utilisation and sale of lianes for furniture manufacture and the reservation of part of the larger forest leases for eco-tourism.

14.II.6 Land Use Planning

14.II.6.1 Although there has recently been an attempt by the government to prepare a land-use plan for the country, its implementation leaves much to be desired. As a consequence, much land is misused, and conflicts arise in the reconciliation of competing uses. This is especially true for the hinterland of the country where it is expected that many large-scale operations will take place in the future. It is therefore necessary to put in place rules and structures to allocate land for different uses, and to speed up the process of defining permanent production forestry areas, protected areas, Amerindian lands, and mining areas.

14.II.7 Government Investment Policies and Procedures

14.II.7.1 In the past, when there was no requirement for forest management plans, and when there was no insistence on the sustainable management of Guyana's forests, the absence of a comprehensive forest investment policy, though reprehensible, was perhaps excusable. However, the policies and strategies which will be highlighted in this document now demand a concomitant statement of the Government's policies in regard to private investment in the sector. These will be presented later in this chapter and will take into account the fees and royalties which should be paid for the wood raw material and its utilisation; the nature and degree of incentives which should be provided to forest producers; and the provision of a window in the development bank, which is a major element of this National Development Strategy, for local forestry development. The investment policy will, of necessity, embrace the tenurial aspects of forest concessions in so far as they pertain to the provision of finance from commercial banks. Under prevailing conditions, no expenditure on roads and other facilities is being made beyond those that are essential for survival, because there is no security of tenure, and loans for forestry development are not easily obtained from commercial banks.

14.II.8 Regulatory Framework and Monitoring Capacity

14.II.8.1 Chainsaw "milling" has helped in no small measure to stabilize the price of lumber on the domestic market, because its product undersells the lumber produced by established sawmills. In the short run, therefore, it has been beneficial to some consumers. However, unless regulated and adequately monitored, the fast growing number of informal chainsaw milling operations could become a major threat to the development and success of sustainable forest management. Recent efforts to consolidate areas held under smaller and shorter permits into units of more viable size which would be easier to monitor, will have to be continued. In addition, steps would have to be taken to rationalise chain saw lumbering by, for example, confining its activities to specific, more monitorable, areas.

14.II.9 Inability of the Guyana Forestry Commission to Fulfil its Mandate

14.II.9.1 There is need to define precisely the Guyana Forestry Commission's position in the overall governmental or quasi-governmental structure; to delineate the degree of autonomy under which it would operate; and to identify the sources of funding for its activities. The lack of clarity in these areas has resulted in undue interference in the Commission's day-to-day functions and an uncertainty about its over-arching role.

14.II.9.2 Most important, the role of the professional, technical and administrative staff of the GFC must be clearly distinguished from that of its Board.

14.II.9.3 Because the Guyana Forestry Commission is under-manned and ill-equipped it is crucial also that the quantity of staff, at both the professional and technical levels, be increased, and that its quality, in all disciplines, be enhanced. This remains critical even though, in recent years, more personnel have been recruited, the Commission has been restructured, and more citizens are being trained in forestry. This shortage of adequate human resources, in both quantitative and qualitative terms, also prevents the GFC from acting expeditiously on matters of obvious emergency.

14.II.10 Hinterland Development

14.II.10.1 Guyana's history, small population, and the bountiful harvests of sugar and rice that are produced by the fertile soils of the coastal plain, combined with other factors such as difficult access to the country's interior where the forests are located, have resulted in the fact that the hinterland is virtually unknown to most Guyanese, and there is severe overcrowding of the population on the narrow coastland. The difficulties of communicating with the interior, and the virtual absence there of adequate health, educational and other social services, are major obstacles to the sustainable development of the country's hinterland. Indeed, many

otherwise viable forestry development projects become prohibitively costly for private firms because, in addition to their normal production costs, they are forced to expend additional financial resources to provide access, transportation and other communication facilities, energy, and such basic social services as education, health and security, to serve not only company settlements but their surrounding areas.

14.II.10.2 It is evident therefore that the development of the forestry sector should not take place in a vacuum. It should be part of a comprehensive plan for the development of the hinterland. If this is done, not only would questions such as the extent of Amerindian lands, the nature and location of protected areas, the provision of transport and social services infrastructure to interior communities, be squarely faced and answered, but the costs of forestry production would inevitably be reduced.

14.II.11 Research

14.II.11.1 The basic requirements for the practice of sustainable management are information on the area of forests and their location, the range of forest types, the composition of the forest by species, the rates of growth of different species under various logging intensities, the synecology of forest ecosystems, and the autecology of species. It is only with this kind of knowledge that limits to the size and species of tree which could be felled might be prescribed, and decisions made with regard to specific areas to be logged, with any hope of sustaining and optimising production, while conserving the forests. Guyana does not possess much of this essential knowledge. A considerable amount of research therefore needs to be undertaken if the goal of sustainable management is to be attained.

14.II.12 Forest Products Association

14.II.12.1 The Guyana Forests Products Association does not play as important a role as it might in the development of the country's forestry sector. The industry itself suffers from a virtual absence of professionally trained and experienced foresters. Not surprisingly, this is reflected in the staff of the Forest Products Association. As a result, the Association is unable to perform the pivotal tasks it should, not only in the furtherance of its own interest but perhaps more important, in increasing the contribution of the forests it exploits to the growth of the economy. Moreover, it has little or no expertise in the conservation of the forest environment through, for example, directional felling and the construction of road networks that are environmentally friendly. The country's forest estate is therefore at risk, and a greater onus and responsibility devolve upon the already burdened Guyana Forestry Commission.

14.II.13 Certification of Exports

14.II.13.1 One constraint to the optimisation of social and economic returns from Guyana's forests is the growing practice by some timber importing countries, under pressure from environmental lobbyists to cease importing tropical timbers, arbitrarily and capriciously, if they are not satisfied that the forests from which the timber is being exploited are being sustainably managed. It is therefore essential that Guyana transparently manages its forests in a sustainable manner, that it ensures that such management practices are understood and appreciated in importing countries, and that it formulates credible and acceptable methods of issuing its own certificates.

14.III SECTORAL OBJECTIVES

14.III.1 The *overall* objectives for the sector are to:

- a. increase the economic, benefits which Guyana derives from its forests and associated natural resources,

and

- b. distribute equitably the benefits of forest-based development to Guyana's rural and interior areas.

14.III.2 The *specific* objectives are to:

- a. promote sustainable and efficient forest activities, which utilise a broad range of forest resources and contribute to national development, while allowing fair returns to local and foreign entrepreneurs and investors;
- b. achieve improved sustainable forest resource yields while ensuring the conservation of ecosystems, biodiversity, and the environment; and
- c. ensure watershed protection and rehabilitation.

14.IV THE STRATEGY

14.IV.1 Land Use

14.IV.1.1 The nation's forest policy will be an integral part of a comprehensive series of land use plans. These plans will recognise the conflicting but legitimate interests of different stakeholders and promote a process of developing a consensus on land use. Accordingly, regional authorities and local communities will be involved in their formulation and approval. They would provide:

- (i) guidelines for environmental protection and sustainable resource utilisation;
- (ii) a legal framework for resource management;
- (iii) national programmes for resource management; and
- (iv) an institutional framework for implementing land use guidelines.

14.IV.1.2 Amerindian Councils and private owners with more than 100 hectares of forest land will be encouraged to develop and implement sustainable management plans for forests on their lands. The Guyana Forestry Commission will assist in the preparation of these plans.

14.IV.1.3 Pending the finalisation of a national land use plan, a land use committee, which would serve as a forum for resolving land use conflicts at the institutional level, will be established.

14.IV.2 Forest Management

14.IV.2.1 The ownership of all forest resources, except those on private property and on Amerindian lands, will be vested in the state.

14.IV.2.2 All forests, including those now on State Lands, but with the exception of forests privately held, will be designated State Forests.

14.IV.2.3 All resources of the forests will be managed in a sustainable manner for the optimisation of their social, economic and environmental benefits. The systems of forest management which would be adopted will be designed to conserve biological diversity and its associated values, water resources, soils, and unique and fragile ecosystems and, by so doing, maintain the ecological functions and

integrity of the forests.

14.IV.2.4 The first step in the process of ensuring the sustainable management of the nation's forest patrimony would be an assessment of its forest resources. Accordingly, inventories will be undertaken by the Guyana Forestry Commission.

14.IV.2.5 Concessionaires will be required to undertake more detailed inventories for the purpose of formulating and implementing forest management plans. These will be checked and approved by the Guyana Forestry Commission.

14.IV.2.6 Topographic and other relevant surveys will also be conducted, as a matter of priority, by the relevant authorities in order to identify vulnerable ecosystems.

14.IV.2.7 The ecological and economic impact of utilising timber and non-timber forest products will be assessed by the Guyana Forestry Commission in conjunction with the Environmental Protection Agency, and their extraction regulated as appropriate.

14.IV.2.8 Management or operational plans will be required for the harvesting of all non-timber resources of the forests before a licence or permit is issued.

14.IV.2.9 The Guyana Forestry Commission, in association with stakeholders, will develop a Code of Practice, which will contain the monitoring criteria and indicators to be utilised for forest management. The Code will be made available to the public.

14.IV.2.10 A legislative framework will be developed for conflict avoidance and resolution, in relation to the multiple uses of State Forests Resources, without compromising the conservation of ecosystems and species. Moreover, quick response criteria will be established in order to ensure that negotiations are not unduly protracted.

14.IV.2.11 In the absence of conclusive research data, the regenerative capacities of identified forest types and species will be conservatively estimated, taking into account all relevant environmental factors.

14.IV.2.12 Commercial exploitation of the State Forests will be undertaken only under concession agreements. Concession licences and permits will be allocated through a process of advertisement and bidding or tendering.

14.IV.2.13 Concessions will also be granted for forest uses other than timber extraction.

14.IV.2.14 The Guyana Forestry Commission, through its approval and monitoring of management and operational plans and the development and monitoring of the Code of Practice, will be responsible for the regulation of operations in concessions. It will develop a fair and transparent framework for the allocation, revocation, renewal and renegotiation of forest concessions; and it will identify blocks of forests eligible for concessions. These blocks will be of different sizes, in order to provide for investors of different scales.

14.IV.2.15 The Guyana Forestry Commission will also develop a standard agreement so that all concessionaires would operate under the same conditions in regard to fiscal provisions and general forest management requirements.

14.IV.2.16 A form of forest tenure will be developed which would enable forest concessions to be used as collateral for forestry development loans.

14.IV.2.17 Concessions will be audited biennially by the Guyana Forestry Commission in order to ascertain whether the concessionaire is meeting the standards and conditionalities defined in the sustainable management plans, following established guidelines and maintaining production. The duration of the concession will be rolled over for two years, if the required criteria are met. If they have not been met for two consecutive audits, the concession will be abrogated. However, to guard against arbitrary decisions by the GFC, the concessionaire will have the right to appeal to the judiciary.

14.IV.2.18 The Guyana Forestry Commission in conjunction with other stakeholders will develop national standards for Certification. These standards would be the criteria against which timber exported from Guyana would be certified as being extracted from sustainably managed forests.

14.IV.3 Infrastructural Development

14.IV.3.1 Forest harvesting and related infrastructural development in the permanent production forests will be co-ordinated and regulated in accordance with the prescribed forest management plans, to maintain levels of log production that are consistent with the need to safeguard environmental quality and ecological balance. Furthermore, the establishment of primary access roads by concessionaires will be co-ordinated and regulated in accordance with the National Development Strategy, to improve the road infrastructure of Guyana's hinterland.

14.IV.3.2 Forest concessionaires will be compensated, either by being permitted to charge user fees, e.g tolls, or by a reduction in forest fees, or by any other arrangement entered into with the Guyana Forestry Commission at the time of signing concession agreements, whenever the extraction routes which they construct form part of a centrally approved national road network plan, and on condition that the extraction routes are constructed to specific requirements and are maintained to those specifications.

14.IV.3.3 The use of secondary roads by other parties will be regulated by private agreements between the concessionaire and those parties. All roads constructed by the concessionaire will become open to public use once a concession expires or has been taken away by the Government for one reason or another.

14.IV.4 Chainsaw Lumbering

14.IV.4.1 A licensing system for chainsaw operators will be urgently instituted. This would require that those transforming the wood resource to lumber be registered and licensed before operating chainsaws in authorised areas of State Forests. Chainsaw lumbering will be confined to areas that are designated for this purpose by the Guyana Forestry Commission.

14.IV.4.2 Chainsaw operators will be trained in skills that would assist them to achieve operational efficiency and reduce ecological damage during felling, harvesting and lumbering.

14.IV.5 Fiscal Measures

14.IV.5.1 Because the forests of Guyana vary in forest types and regenerative capacity, it would be difficult equitably to prescribe fees for the utilisation of the country's forest resources that are based on the spatial area of concessions. Fees will therefore be charged on the volume of timber felled. The rates charged will be common to all species, no distinction being made among species.

14.IV.5.2 Based on approved forest inventories and forest management plans, concessionaires will be required to extract a minimum volume of timber from their concessions each calendar year. The fees to be charged on this minimum volume will be paid in four *tranches*. The first installment will be paid at the

beginning of each year and would cover the volume planned to be felled in the first quarter. At the end of that quarter, there will be a reconciliation between the amount which had been advanced and the volume actually felled. Further felling will not be allowed unless all outstanding royalties and fees for the assessed quarter had been paid, and unless the second *tranche* or installment were paid in advance of the operations of the following quarter. The same procedure will be followed for succeeding quarters. If, at the end of any quarter, the lessee has made payments in excess of fellings, the surplus payments will be credited to the upcoming quarter.

14.IV.5.3 All fees will be payable in the official currency of Guyana. The fees charged for the felling of trees will be half of the combined value of the area charges (concession rents) and stumpage fees now levied by the Guyana Forestry Commission. These will be revised upward in five-year periods, so that after the first two revisions, i.e. by 2010, the fees would be equivalent to those prevailing in 1998. Further revisions will be the result of negotiations between the Guyana Forestry Commission and the Guyana Forest Producers Association.

14.IV.5.4 All the fiscal measures adumbrated in this National Development Strategy, will be applicable to the forestry sector. No distinction will be made between local and foreign investors.

14.IV.5.5 A proportion of the fees collected will be retained by the Guyana Forestry Commission, the remaining revenues will be placed in the Consolidated Fund for the use of the people of Guyana. The share of fees allotted to either party will be decided by negotiations between them.

14.IV.5.6 One percent of the fees allocated to the GFC will be placed in a fund for the improvement of the operations of the Guyana Forests Products Association, in order to ensure that some of the constraints which now impede the progress of forestry in Guyana are removed.

14.IV.6 Forest Industries

14.IV.6.1 Priority areas for attracting foreign investment will be the more capital-intensive, higher technology projects, and those that are linked to an overseas marketing network.

14.IV.6.2 Fiscal incentives will be provided to encourage the utilization of logs in downstream activity, i.e., to add value to the product.

14.IV.6.3 The commercial production and processing of non-timber forest resources, such as fibers, latex, oils and fruits will be promoted as an essential element of sustainable forest utilisation.

14.IV.6.4 Through the employment of fiscal measures, financially viable local markets will be developed for Guyana's timber and timber products, with emphasis being placed on the utilisation of lesser-used species.

14.IV.6.5 New technologies for the economic utilisation of timber to broaden and diversify the range of species available, to minimise waste, and to maximise the returns from the conversion of felled trees will be developed jointly by the Guyana Forestry Commission and the Guyana Forest Producers Association, so long as the sustainability of the forests is not impaired. Individual initiative will also be encouraged.

14.IV.6.6 A Policy and Planning Unit will be established within the Guyana Forestry Commission. The unit will, *inter alia*, collect and disseminate information to both established and potential investors on forestry-related matters, and collaborate with the Guyana Natural Resources Agency.

14.IV.6.7 All commercial processing activities, including those of non-timber resources, will be licensed by appropriate institutions. All processing operations will be classified by their installed capacity.

14.IV.6.8 Existing timber grading rules will be revised and expanded to incorporate other forest products and a wider range of end-uses.

14.IV.6.9 Standard sizes of timber, lumber and other forest products will be developed for various applications by the Guyana Forestry Commission, in consultation with the Forest Products Association, Guyana Manufacturers Association, Bureau of Standards, engineers, architects and the building trade.

14.IV.6.10 The marketing of lesser-used species will be optimised through research and development to identify appropriate processing technologies at various stages of the supply chain: log conversion, storage, machine and tool setting, and post conversion treatment such as preservation and drying.

14.IV.6.11 The Forests Products Association and the Guyana Forestry Commission will be encouraged to establish a Market Research Unit to develop the export trade in wood and other forest products,.

14.IV.6.12 The legal authority now vested in the Guyana Forestry Commission for the overseas marketing and export control of Guyana's timber will be removed.

14.IV.7 Research, Education and Information

14.IV.7.1 A Forest Research Committee will be established to formulate and monitor a national forestry research programme; determine priorities for research and development; advise on the most suitable ways for conducting forestry research; ensure close collaboration with organisations responsible for research in other aspects of land use; and seek and co-ordinate the use of funds for research. Moreover, a National Centre for Research in Forestry will be established. In addition to conventional activities, research into the development of non-timber forest products will be undertaken, with emphasis on the sustainability of the resource.

14.IV.7.2 In order to ensure that adequate financial resources will be available for forestry research and development in Guyana, a fund will be established by the Guyana Forestry Commission.

14.IV.7.3 Training and education in forestry and forestry related disciplines will be provided at all levels and for all types of forestry activities. Wherever relevant, on-the-job training will be given in private mills and in the forests of concessionaires.

14.IV.7.4 The principles of equal opportunity and affirmative action will be applied particularly in respect of

14.IV.7.5 The Board of the Guyana Forestry Commission will establish an Education and Training Sub-committee as the principal agent for the co-ordination of training and education.

14.IV.7.6 Collaborative efforts in forestry education and training will be established between the Forestry Commission and the University of Guyana.

14.IV.7.7 The Forestry Certificate Course at the Guyana School of Agriculture will be developed, strengthened and supported, so that it could meet the needs of the Guyana Forestry Commission, the forest industry sub-sector, and other organisations.

14.IV.7.8 Relationships will be established with all international and overseas-based programmes which operate in Guyana to allow those programmes and their staff to be utilised in the post-graduate training of students of the University of Guyana.

14.IV.7.9 A dedicated Forestry Education and Training Fund will be established by the Guyana Forestry Commission.

14.IV.7.10 National standards will be developed for training, and provision will be made for the monitoring and enforcement of standards. Action will be taken at the instance of the Education and Training Sub-Committee and will involve the Board of Industrial Training or a similar National Agency.

14.IV.7.11 A Forestry Vocational School will be established in the Interior.

14.IV.8 Forest Administration

14.IV.8.1 The functions of the Guyana Forestry Commission, as set out in Section 4 (1) of the Guyana Forestry Commission Act, will be reviewed in the light of new legislation for other agencies, and will take into account current administrative practices. This review will result in the formulation of a new integrated National Forest Act.

14.IV.8.2 The new integrated National Forests Act will re-establish a Guyana Forestry Commission which will include:

- a Chairman of the Commission;
- the Commissioner of Forests as an *ex-officio* member;

14.IV.8.3 Representatives of other relevant government agencies as *ex-officio* members; and representatives of the Forest Products Association and Non-Governmental organisations operating in the natural resources sector.

14.IV.8.4 The professional head of the Staff of the Guyana Forestry Commission will be designated Commissioner of Forests. The Commissioner of Forests will be the Chief Executive Officer of the Forestry Commission.

14.IV.8.5 To supplement its own human resources, the Guyana Forestry Commission will from time to time and through contractual and other arrangements, enlist the expertise of private persons and agencies and non-governmental organisations, for the performance of its operational functions, e.g., the inventorising of forests and the preparation of management plans.

14.IV.8.6 The responsibility for forestry matters will be transferred to a newly created Ministry of Natural Resources. This new Ministry will also absorb the functions now undertaken by the Guyana Natural Resources Agency which will be abolished.

CHAPTER 15

WATER

15.I BASIC FEATURES OF THE SECTOR

15.I.1 General

15.I.1.1 Approximately 90 percent of Guyana's population lives on a narrow coastal strip that accounts for only 5 percent of the country's total land area. This coastal strip, which stretches between the country's borders with Venezuela and Suriname, has rich alluvial soils suitable for the cultivation of rice, sugar cane, and other agricultural crops. Unfortunately, it lies between 1.5 to 3.5 feet below the mean high-water mark. The area therefore must be protected by defences to prevent inundation from the sea, and soil deterioration due to saline intrusion. Drainage, which is as important as sea defence, because the disposal of high surplus surface runoff by gravity is also complicated by the low level of the coastal plain, is effected through sea and river sluices which are opened during the low stage of the tide. Without these sea defences and a proper drainage system, all coastal property would be in jeopardy.

15.I.1.2 Compounding the difficulties of topography, are the problems that are inherent in the rainfall regime of the country. The average annual rainfall of Guyana is about 100 inches, with maxima and minima being 140 and 60 inches respectively. There are two distinct periods of high rainfall: May to June/July and November to December. In between these two wet seasons, there can be periods of severe drought.

15.I.1.3 The coastal plain of Guyana is also endowed with ground water. However, increasing demands for water for various uses severely challenge the availability of this resource. Perhaps not surprisingly, the competition of various uses – irrigated agriculture, the domestic sector, industry and commerce – is particularly felt in the dry seasons, during which severe water shortages are experienced throughout the country. The situation is aggravated by inappropriate water resource management, and inadequate institutional arrangements. Uncontrolled water withdrawal, inadequate water tariffs, an absence of economic incentives for water conservation, all contribute to the wasteful use of the water resource in both domestic and irrigation activities. Moreover, the environmental aspects of water development and urban sanitation are sometimes neglected and result in water contamination.

15.I.1.4 This coastal zone is protected from the intrusion of saline water by mangroves, dikes, sluices, and sea walls that have been built over the past two centuries. With the extensive drainage, irrigation and flood control network, the sea defences serve to make the coast habitable and cultivable. Without this hydraulic system, cultivation and settlement would have to be located much farther inland.

15.I.1.5 The area has a dense network of irrigation and drainage canals and other structures to provide water to the crops and keep it free from excess water for agriculture and other economic activities. The water for irrigation during moisture deficit periods is provided by conservancies which also serve to retain surplus rainwater, thus providing security against the flooding of the coastal plain. The conservancies and the drainage and irrigation infrastructure are, therefore, crucial to Guyana's economy.

15.I.1.6 Until the mid 1970s, sea defences and drainage and irrigation accounted for most of Guyana's capital expenditure. However, as has been frequently disclosed in this document, the country's economy went into decline during the 1980s. The maintenance and repair of sea defences and drainage and irrigation works were therefore seriously neglected. Indeed, over the years approximately forty kilometres of sea defences have either collapsed or have been brought to the point of failure; and the drainage and irrigation system has been reduced to a state of total disarray.

15.I.2 Sea Defences.

15.I.2.1 Over the years, it has become understood that the design of sea defences must take into account the following five factors. First, the land level of the coast lies below that of mean high–water spring tides by about one metre; hence, any development along the coast must be protected against flooding during high tides; clay embankments are recommended, because they are inexpensive and watertight. Second, incoming waves, which are much higher during high tides, will break against any obstruction they encounter. Sea defence structures must therefore be resistant to wave action. Because earthen embankments will erode under such wave action, either the seaward face of the embankments must be adequately protected, or other forms of sea defences, e.g., concrete or sheet piling walls, should be used. Third, the foreshore of Guyana experiences the passage of large mud–banks that originate from deposits of the Amazon River. Wherever mud–banks are present, the foreshore will be high and sand and shell beaches may form. At locations between mud–banks, the foreshore will experience erosion and its levels will be much lower. The seaward toe of any sea defence at these locations should therefore be placed below the erosion or scour level, or else undermining, which will result in failure, will occur. Fourth, the fine nature of the predominant foreshore material does not encourage its deposition against barriers, so groynes are not very effective as protection structures. These structures are only useful where the transported material is sandy, and deposits easily. As such, groynes should be constructed only along the estuaries where sand is present. And fifth, the weak nature of the foreshore soils must be considered in sea defence designs. Embankments should therefore have gentle slopes or else the earth will slide and heavy structures will experience excessive settlement over time. Finally, it cannot be over–emphasized that the efficient operation of the sea defence system is dependent upon adequate maintenance.

15.I.3 Drainage and Irrigation

15.I.3.1 In Guyana, the drainage and irrigation (D&I) system was developed by sugar estate owners along the coastlands to draw water from the marshy lands behind their estates. The irrigation system basically consists of primary and secondary canals. The primary canals draw water from the conservancies, or any perennial source such as a river, through a control structure/pump system at the head, and distributes it to the secondary system through a control mechanism for onward transfer to the fields. The drainage system also consists of secondary and primary drains, the latter of which generally discharge water to the rivers or the ocean through sluices. The system which is operated today is still much the same as it was when it was originally constructed. Many primary drains do not drain directly into the sea but into a facade drainage canal running parallel to the coastline, which in turn drains into the sea through a sluice. Drainage and irrigation for the whole area therefore is dependent on the effective management of the network.

15.I.3.2 The efficient operation of this system is also dependent on regular maintenance. Canals require weeding and clearing between two to three times a year. If this does not take place, the vegetation reduces the flow of water and causes the canals to silt up quickly. This of course further retards the flow. As a consequence, both agricultural productivity and production are considerably reduced.

15.I.4 The Hydrometeorological Service

15.I.4.1 The Hydrometeorological Service operates the National Meteorological Station Network (NMSN) and the National Hydrological Station Network (NHSN) and evaluates the climate and water resources. By collecting, processing, archiving, retrieving and analysing the data from both Networks, it is able to provide information to those agencies that are planning and designing agricultural and water development projects, and maintaining the sea defences. It also analyses the lower and upper atmospheric weather data of the western hemisphere, and disseminates the information to the aviation and other sectors.

15.I.4.2 Besides its regular duties the Hydrometeorological Service collects and analyses information on long-term climate trends, water flows and tides, thus serving as an early warning system for climate change.

15.II ISSUES AND CONSTRAINTS

15.II.1 Issues

Sea Defences.

15.II.1.1 The interval between the identification of critical sea defence areas which need maintenance or repairs, and the commencement of physical works is too long. The movement of mega mudbanks along the shoreline may result in dramatic changes that require a quick response. However, the current rules of the bureaucracy require that any contract of a value greater than G\$6 million must go through the Central Tender Board. This is often time consuming and frequently leads to delays in project execution. A more flexible and practical system should therefore be devised to help in the more timely execution and implementation of such project activities.

15.II.1.2 Procurement of quarry products is a major item in sea defence works. Unfortunately despite the recent increase in competition through the resuscitation of a third quarry, the cost of quarry material remains high. It is hoped that the road and canal infrastructural work which has been prescribed in this National Development Strategy will assist in reducing the transportation costs of these materials.

15.II.1.3 The Sea and River Defence Board has the legal responsibility for all declared sea and river defences. The Hydraulic Division is the Board's executing agency and is part of the Ministry of Public Works and Communications. As such, it shares the institutional problems common to all ministries. To overcome these limitations, the Project Execution Unit was formed in 1994 to manage donor agencies-funded programmes and to train counterpart staff. It has no formal legal mandate but was given some autonomy in accounting and procurement. It should be evident that the effective management of this organisation is vital if the limited skills that are available in this area in the country are to be effectively utilised. It is not at all certain that this qualify is to be found in this unit. A longer-run concern is that the Project Execution Unit was envisaged as a temporary unit. Therefore, after the donor-supported rehabilitation of sea defences is completed, there will be need for an effective, permanent agency to manage maintenance tasks and ensure that maintenance works are not again neglected.

15.II.1.4 New policies are needed to ensure adequate funding for maintenance of the sea walls on a continuing basis. The lack of such funding in the past has led to severe deterioration of the structures, and hence the current necessity to resort to external sources of funding for major rehabilitation.

15.II.1.5 Because of the stringent preconditions of the donor agencies, local and regional contractors find it difficult to pre-qualify for some sea defence projects. The contractual arrangements should be re-examined to enable local contractors to be eligible for at least the smaller projects. In addition, measures should be taken to encourage them to acquire relevant skills.

15.II.1.6 The finances provided under the current donor agencies programme fall in the range of US\$6 million and US\$14 million. This has led to restrictions in the selection of suitable contractors for the EC and IDA tenders, effectively excluding local contractors. Including them is likely to result in substantial reductions in the cost per kilometre of rehabilitating sea walls.

15.II.1.7 The Project Execution Unit is currently self-accounting. Auditing is undertaken by the Auditor General's Office. Expenditure is recorded under two headings: "local expenditure" and "specific expenditure." The accounting of Hydraulics Department is managed through the Ministry of Public Works and Communication using the traditional public service accounting procedure. One system should be applied.

15.II.1.8 There are two principal reasons why the sea defences are in such deteriorated state today: lack of performance of regular maintenance duties over the years, and failure to protect the mangrove areas that once were very prevalent along the coast. The remaining mangrove zones must be urgently protected, and a gradual programme of reforestation of other areas should be undertaken. Experience throughout the world has underscored the necessity of working closely with artisanal fishermen and local communities in designing and implementing such programmes.

15.II.1.9 Sea defence data need to be upgraded and a monitoring programme established. Among the immediate requirements are hydrographic surveys and wave measurements. Aerial photography to help in the determination of land use patterns, the extent of mangroves, and the locations of sea defences should be undertaken and then repeated regularly to monitor changes. A programme for monitoring erosion and accretion should be put in place.

15.II.1.10 Guyana can ill afford to continue sea defence construction at current costs. Methods to reduce the financial requirements should be investigated.

Drainage and Irrigation.

15.II.1.11 There are too many agencies with a role to play in the management and operation of Guyana's drainage and irrigation systems. In addition, the institutional framework is characterised by a lack of clear policy objectives, inadequate supervision and coordination, multiple overlapping jurisdictions, significant variations among Regions in organisation and effectiveness, and imprecise roles of the various agencies. The institutions also differ in professional capability, in their knowledge and utilisation of modern technology, and in their managerial infrastructure.

15.II.1.12 The level of technical education in water sciences in the regional engineering departments is poor, as is the level of education in the accounts section. Indeed there is no separate academic programme for hydrology or water resources. There is also no short or long term training programme for middle level water sector professionals, sub-professionals, or other support functionaries.

15.II.1.13 The newly established National Drainage and Irrigation Board needs reinforcement in many departments. In addition, it ought to be linked to international centres of excellence in water sector management, in order to exchange experts, knowledge and information.

15.II.1.14 The present system allows for little or no direct involvement of farmers, although they are supposed to be the beneficiaries of the D&I system. They have almost no representation or voice in planning, and very little participation in maintenance. Thus, the group that has the greatest incentive to be involved in developing an efficient system is excluded from it.

15.II.1.15 Little consideration has been given to the role of D&I in the context of the country's entire hydraulic system, and its impact on the water balance of the country. The interaction is only at the top level and that also is not very effective.

15.II.1.16 The key to the deterioration of the infrastructure is the failure to secure financing for operation and maintenance. The financing of operation and maintenance depends on the collection of drainage and irrigation rates, with the added complication of conservancy and land development scheme rates. The rates

are low and collection is poor. Indeed, rate collection is currently only about 30%. Farmers are unwilling to pay for the poor quality of services currently being provided by public agencies, while the main reason for the poor services is the severe financial constraints experienced by these public agencies.

Hydrometeorological Service.

15.II.1.17 The National Meteorological and Hydrological Station Network has been affected over the past two decades by a lack of spare parts and the rapid loss of skilled staff. This has resulted in the closure of several important stations in the approved World Meteorological Organisation Network Design, and the consequential loss of data. Also, most stations are in remote hinterland areas which can be accessed only by aircraft and other expensive means of transportation.

15.II.1.18 The unit handling the hydrometeorological services needs strengthening both in terms of institutional infrastructure and personnel capacity building.

15.II.1.19 Approval has been given by Government to institute a system of charges for data supplied by the Hydrometeorological Service. It is a service-oriented organisation and forecasts have been generally issued free of cost to the media and all the interested agencies/individuals. However, charges are usually applied to specialised data requests, thus helping to offset partially the expenditures for these special investigations and field analyses. Overall, cost recovery has been very low and ways need to be sought to increase it.

15.II.1.20 With no specific mechanism in place for the recovery of the costs incurred in the maintenance of the sea defences, Guyana relies almost entirely on donor agencies to rehabilitate the critical areas. However, only the most urgent needs are being met. As a consequence there are many areas which are unrepaired and unmaintained. It is, therefore, no exaggeration to state that the coastal plain is always in imminent danger of inundation.

15.II.1.21 Because of the insufficiency of funds and the low salaries that are paid, a significant number of trained and capable staff has left the Hydraulics Division over the years.

15.II.1.22 The widespread lack of public awareness of the value of mangroves for sustaining marine fisheries and preventing the flooding and erosion of sea defences, has represented a major constraint in this sector. Equally, protection of coast-lands against the sea has been hindered by the lack of a forward-looking programme based on developing a consensus with coastal communities on how best to manage mangroves.

15.II.1.23 The sector suffers from a major shortage of trained and qualified personnel. The fundamental reason for this is the lack of training and educational facilities in water sciences.

Inadequate mapping

15.II.1.24 The NDIB which is now the custodian of the D & I system of the country does not have detailed documents which show the infrastructure of different areas. During the transfer of the Hydraulics Division from the Ministry of Agriculture to the Ministry of Works, all the maps and reports of the D & I system were retained by the Hydraulics Division. None is, therefore, available in the NDIB. The drawings, which are reported to be old and often do not show all vested works or residential areas, are also not available in the NDIB. More seriously, works under the responsibility of the local authorities are not mapped. This obviously represents a major drawback in assessing what the scope of rehabilitation works in the D&I areas should be. The NDIB thus does not have precise information of the assets that are supposed to be under its control.

15.II.1.25 The Conservancy Boards are required to operate the head regulators on the conservancies but, in practice, little control is exercised by them, and water users have a lot of freedom to interfere with the gates.

This is a serious problem, as the assessment of water availability and water needs should determine irrigation flows. In fact, the available information on the water potential of the conservancies lies almost exclusively in the hands of on the sugar estates. Consequently, the interests of one group of water users, the sugar growers, tend to guide water–use decisions. Ideally, a body that is independent of the water users, or a representative group of farmers of all interests, should undertake and be responsible for the distribution of water. However, without the support of the sugar estates, it is likely that the system would have collapsed totally. With the establishment of the National Drainage & Irrigation Board, it is appropriate that the conservancies now operate under this national institution.

15.III SECTORAL OBJECTIVES

15.III.1 The overall objectives of the sector are, in respect of sea defences, to ensure that the assets, productivity and livelihood of those Guyanese who inhabit the coastal belt are protected from the ravages of the Atlantic Ocean and, in regard to drainage and irrigation, to contribute to the national goal of equitable and rapid economic growth by facilitating increased agricultural production and other economic activity on the coastland. The objective of the Hydrometeorological Service is to support sea defence, and irrigation and drainage activities, through the provision of services to all water–using organisations, as well as to such users as airport and port authorities.

15.IV THE STRATEGY

15.IV.1 A National Water Commission, (NWC) responsible to a Cabinet Sub–committee, which shall oversee and co–ordinate the activities of all water related agencies will be established. Representatives of the main water–users will be on the Commission.

15.IV.2 The NWC will also be authorised to formulate the mechanisms for the implementation of this National Water Strategy.

15.IV.3 A standardised national electronic water information system, with a network of data banks and compatible data bases allowing for exchange of data, will be established. Apart from the data on water availability and actual water use, the system will include a facility for comprehensive and reliable timely projections of future demands for water for diverse purposes.

15.IV.4 Periodic assessments of both surface and ground water resources, and their utilizable component on a basin – wise basis, will be conducted.

15.IV.5 There will be a closer integration of water use and land use policies. The planning of water use will take into account land capability and will be supportive of land improvement.

15.IV.6 Legislation will be enacted to ensure that ground water is utilised only for domestic purposes, until additional exploitation is supported by confirmation of the sustainability of ground water supplies. Ground water is of immense value and a natural resource which may or may not be sustainable in Guyana. Until adequate recharge is assured, groundwater will be utilised for domestic uses only.

15.IV.7 A public awareness strategy will be mounted to emphasise the value of both surface and ground water resources. Users will be encouraged to utilise more surface water as this is available abundantly in relation to the country's present and future needs. This strategy will not only conserve ground water, but will also prevent salt water intrusion in the coastal aquifers.

15.IV.8 Surface water *storage* facilities for agricultural, domestic and other uses will be established. The available information indicates that there is competition for this commodity during times of scarcity. This competition is not due to inadequate rainfall, but to avoidable spillage and inadequate storage.

15.IV.9 Cost recovery programmes will be adopted. However, the price charged for water will take into consideration the feasible level of recovery from the user.

15.IV.10 Low rainfall areas will be made less vulnerable to drought-associated problems through soil moisture conservation measures and the transfer of surface water from surplus areas where feasible.

15.IV.11 The drainage of agriculture and homestead lands will be an integral component of water, urban and sea defence planning.

15.IV.12 Water resource development projects will, as far as possible, be planned and developed as multipurpose projects, with the basin as the unit of planning. Hydropower development will receive prime consideration.

15.IV.13 The erosion of land, and the ingress of salt water, whether by the sea in coastal areas or by river water inland, will be minimised by suitable cost effective measures.

15.IV.14 The institutions tasked with the development and management of water resources for different uses and purposes will be adequately strengthened in terms of modern technology and professional capability.

15.IV.15 Training programmes will be organised in the latest project planning and management methods.

15.IV.16 International donor-funded contracts will be split, wherever feasible, to allow regional and local contractors to participate.

15.IV.17 Local contractors will be encouraged and assisted to form joint ventures to tender for the larger projects.

15.IV.18 A sea defence maintenance tax will be instituted, and will be paid by all those living on the coastal belt, that are not exempt from the paying of income tax. The revenue collected by way of this mechanism will be deposited in a special account for the maintenance of sea defences.

15.IV.19 The priority for the maintenance and repair of sea defences, until the system becomes routine and all sea defences are intact, will be based on the areas along the coastland that require immediate protection. Land use and shallow foreshore levels will be the main criteria used for selection, with housing areas being afforded the main priority. These areas will include the Essequibo Coast between Supenaam and Maria's Delight, Wakenaam, Leguan, East Bank Essequibo, East and West Demerara and No. 78 and No. 83 on the Corentyne Coast.

15.IV.20 In areas where there are no residences, retirement of the sea defence line, when breached, will be the main criterion for intervention. If a small section of an exposed coastline is protected, then continued erosion upstream and downstream will require additional lengths of the shoreline to be protected or a headland will be created.

15.IV.21 It has been the experience that the time span between critical area identification and the commencement of physical works has been too long. The Project Executing Unit will maintain and update at appropriate intervals records of critical areas. In addition donor agencies will be asked to expedite procurement procedures.

15.IV.22 Together with rock armouring protection, other viable methods of defence, including the management of mangrove forests and the placement of groynes, will be pursued. Mangrove management will be actively implemented in the areas between Mahaica and Rosignol; and in the lower Corentyne areas.

15.IV.23 The construction of houses and other buildings, and the installation of supporting infrastructure, will be prohibited within a certain distance of the sea defences. This distance will vary along the country's coastline, but will not be less than 200 feet. At locations along the coast where there is no intensive housing development, any plans for such development will be revisited, taking into consideration the need for present and future sea defence protection. Future housing development will be restricted to areas south of the Public Road, as far as possible.

15.IV.24 In order to optimise the sustainable operation and maintenance of the drainage and irrigation system, the newly formed D&I Board will develop a simplified, two-tier institutional structure, which will be financially viable.

15.IV.25 Farmers themselves will determine the most appropriate institutional arrangement for managing the secondary systems in their localities, whether through the existing Local Government Authorities (LGAs) or through the Water Users' Associations (WUAs).

15.IV.26 The Board will support and encourage the formation of associations of farmers who will be responsible for the operation and maintenance of secondary systems. Once fully operational, these WUAs will be self-financing, self-regulating, and self-governing, and will assume full control over the secondary system in their localities. The Board will also propose a legislative framework within which the WUAs will operate.

15.IV.27 Where farmers are satisfied with the current institutional arrangement, the Board will support and strengthen the capacity of the LGAs to administer the operation and maintenance of secondary systems by providing training, advice and support.

15.IV.28 Water users, whether through WUAs or LGAs, will bear in full the costs of the operation and maintenance of drainage and irrigation of secondary systems. The rates set and collected by the WUA or LGA will eventually cover all costs associated with the secondary system. In addition, farmers will pay rates to cover costs for the operation and maintenance of primary irrigation canals, and to contribute to the operation and maintenance of conservancies.

15.IV.29 The Board will establish standards for operation and maintenance, implementation and monitoring of the activities of the local level entities, and for ensuring that the secondary system functions satisfactorily, in an environmentally sound manner.

15.IV.30 In order to increase agricultural production and productivity in Guyana, D & I services will be improved and extended to include:–

– rehabilitation and modernisation of the existing D & I system with façade drain and pumped drainage as integral components;

– the placement of D & I facilities in unserved areas that are already under cultivation;

–

special schemes for islands; and

– modern D & I facilities to new potential agricultural area.

15.IV.31 Those hydrometeorological stations which now exist but are not being utilised will be reactivated. In addition the number of stations will be increased, in order to improve the design network for enhancing forecasting capabilities.

15.IV.32 Staff skills will be improved through seminars, and on-the-job training. Research capabilities and other related skills will be further developed.

15.IV.33 Real time data transmission from remote stations to the central station via satellite will be effected.

15.IV.34 The Hydrometeorological Service will be made functionally autonomous. It will continue, however, to receive funds from the public treasury.

15.IV.35 The Service will determine prices to be charged for information, to offset the expenditures it incurs. It will begin to levy charges on users such as airport authorities and water related agencies which, to date, have been receiving these services free.

15.IV.36 All development projects will be examined by the hydromet services with a view to assessing the relevant data/ information used in project planning/ design.

15.IV.37 The Hydrometeorological Service will be a permanent member on the water boards and other related agencies.

CHAPTER 16

MINING

16.I BASIC FEATURES

16.I.1 Contribution to the Economy

16.I.1.1 The mining sector makes invaluable contributions to the country's economy. It accounted for 17 percent of GDP in 1998; and, every year since 1991, the value of its exports was higher than that of every other sector, as were the amount of revenue that it engendered. Moreover, the industry directly absorbs between 15,000 and 20,000 of Guyana's labour force.

16.I.1.2 Indeed, the sector is both labour and capital intensive, the high degree of mechanization requiring a considerable range of support services. These include metal fabrication, machine construction and repair, transportation, carpentry, plumbing, welding, pipefitting, and blasting.

16.I.1.3 The larger mining companies and the Guyana Geology and Mines Commission (GGMC) are also involved in the construction and repair of hinterland roads, thereby improving the quality of the country's infrastructure, and facilitating the penetration of its interior.

16.I.1.4 The mining sector has also contributed significantly to the development and improvement of social infrastructure such as schools and health facilities.

16.I.2 Guyana's Mineral Wealth

16.I.2.1 In addition to its well-known deposits of gold, diamonds and bauxite, Guyana's mineral heritage includes occurrences of industrial minerals such as kaolin, silica sand, soapstone, kyanite, feldspar, mica, ilmenite, columbite–tantalite, and manganese; base metals such as copper, lead, zinc, molybdenite, tungsten, and nickel; ferrous metals, of which iron as magnetite and laterite is the main type; uranium; and semi-precious stones such as amethyst, green quartz, black pearl, agate and jasper.

16.I.3

Gold

16.I.3.1 Historically gold production has, almost exclusively, been from alluvial and eluvial deposits. More recently, however, the large open pit at Omai Gold Mines Limited has considerably increased the country's gold production. Indeed, while gold declarations from local producers have been maintained at approximately 110,000 ounces per year, Omai produces, on average, approximately 300,000 ounces per year. Gold continues to be Guyana's highest value export commodity.

16.I.3.2 Gold was first produced in Guyana by "porkknockers" using hand mining methods which revolved around ground sluicing, the long tom and the battel or gold pan. This method was later supplemented and to an extent mechanized with the introduction of couple jet dredges which had the capability of mining the river bottoms under the guidance of aqualung equipped divers. Couple jet units have now been largely superseded by the remote controlled, diver-less gravel pumps or missile dredges, which possess the capability to mine deeper channels and river banks, and to explore river-bottoms more efficiently. However, because the river beds are becoming exhausted, a larger percentage of the local production is increasingly derived from land dredges, which work large pits in fossil placers, terraces and eluvial/saprolite hosted deposits.

16.I.3.3 There is only one established, locally-owned and operated, open pit hard rock gold mine in Guyana which employs blasting, crushing and gravity recovery circuits. In this system spent ores are being stockpiled for additional treatment at a later date.

16.I.3.4 Omai Gold Mines Limited is the only large scale open pit, hard rock mine now operating in Guyana. It is controlled by the Canada based Cambior Inc. and the USA based Golden Star Resources Ltd., with the Guyana Government holding a 5 percent equity interest. There are other large scale hard rock gold deposits in Guyana: Marudi Mountain in the South Savannah, Eldorado in the Kaburi Area, Peters Mine in the Potaro, Eagle Mountain in the Mahdia area and Tassawini, Mariwa and Aurora in the Cuyuni; they are not, however, currently operational.

16.I.4 Diamonds

16.I.4.1 Diamonds were first reported in 1887 from the Puruni River Area and in 1890 from the Putareng River. Diamond production, mainly from the Mazaruni River Basin, peaked in the 1920s with over 200,000 carats being annually declared. The diamond sector has however been in decline since about 1970 and, in the last five years, the annual declaration of diamonds has been only about 35,000 carats.

16.I.4.2 Most diamonds are found in fluvial environments either on the 25,000 square kilometres Roraima Plateau or within twenty five kilometres of the escarpment. Some diamondiferous gravels are also located at distances of as much as 150 kms from the Roraima rocks. In such cases they are associated with the deposits of the White Sand series which are thought to be derived from the erosion of the Roraima sediments.

16.I.4.3 The diamonds produced in Guyana are eminently cuttable octahedras and rounded dodecahedras; the production tends to be about 60 percent gems, 10 percent near gems and 30 percent industrials; the average stone size is 10 to 13 points; and the average value tends to be about US\$100.00 per carat. While resources of the order of millions of carats are postulated, the relative remoteness and inaccessibility of the diamond fields, the lack of roads, power and labour, and the relatively small stone size and value, render most of this resource sub-economic at this time.

16.I.5 Bauxite

16.I.5.1 Bauxite was first produced in Guyana in 1917. Until 1971, the industry was totally owned by two major North American integrated multinationals, Alcan and Reynolds. However, the Alcan subsidiary, Demerara Bauxite Company (DEMBA), and the Reynolds subsidiary, Reynolds Berbice Mines, were nationalised in 1971 and 1975, respectively.

16.I.5.2 For the ten years immediately following its nationalisation, the industry experienced a period of reasonable success. During that time, production increased, positive net income was recorded, and substantial contributions were made to the nation's economy in the form of dividends, corporation taxes, employment, and export earnings. The industry, however, entered a period of steep decline after 1981 and, by 1991, was technically bankrupt. Efforts by the Government to obtain international institutional financing for its revival led to a commitment to its privatisation.

16.I.5.3 A condition of the financing, which was received from the World Bank to improve its performance before divestment, was the dissolution of Guyana Mining Enterprise Limited (Guymine) which owned and managed the entire industry, and the establishment of two separate companies – Linden Mining Enterprise (Linmine) and Berbice Mining Enterprise (Bermine) centred around the two operating divisions of Guymine, with Linmine being placed under foreign management and an Initial Reconstruction Programme (IRP), while Bermine continued under local management.

16.I.5.4 The IRP did not achieve the expected results: the production of refractory bauxite (RASC), the pillar or the programme, fell continuously over the next five years and, with falling prices, resulted in a worsening of the company's financial position. It was therefore decided by the management that the market for the company's only product, refractory bauxite (RASC), had deteriorated to the point where the company was no longer a viable entity.

16.I.5.5 Attempts to privatise Linmine in 1996 on a piece-meal basis, with the core activity, the production of refractory bauxite, being offered to interested parties, evinced little interest. The government therefore decided to give the entity a grace period of 5 years to become profitable. If profitability was not attained it was to be either sold or abandoned. Since its performance had not improved, the Government, at the end of September 1998, decided to advertise the company again for privatisation, with a view to completing the process by the end of 1999. However, by the end of March 2000, there were no offers to take over the company. Linmine's fate is therefore still to be decided.

16.I.5.6 Bermine's performance after the re-structuring was also indifferent. Although the company recorded a positive net income in 1993, it made considerable losses over the next three-year period. And even though it recorded a small profit in 1997, and shows prospects of becoming viable, that company also had been identified for privatisation with the same schedule as Linmine. In 2000, a tentative offer for a merger with Bermine was put forward by the Aroaima Bauxite Company, (ABC) which is the third bauxite company existing in Guyana. This offer was rejected by the government. A foreign company has since expressed an interest in entering into a partnership with Bermine but no decision has as yet been made on this matter.

16.I.5.7 The two producing companies comprising the state sector control considerable bauxite reserves and installed production capacity which are currently under-utilised. While much of the capacity is in a poor state of maintenance, resulting in the effective capacity being significantly below the installed capacity, some of this capacity could be restored with relatively low levels of carefully planned and executed capital investments.

16.I.5.8 Both state-owned companies own production facilities, which, in their current state of maintenance, are not capable of operating anywhere close to their rated or installed capacity.

16.I.5.9 The third company, ABC, is owned jointly by the Government of Guyana and Reynolds Bauxite Company. The equity in ABC, which was established in 1989, is shared on a 50:50 basis. ABC pays neither taxes nor duties. It has never distributed any dividends.

16.I.6 Miscellaneous Minerals

16.I.6.1 Manganese was discovered in 1903 in the Matthews Ridge Area in the north-west of the country, but was not put into production until 1960. This operation closed in 1969, although substantial reserves still exist.

16.I.6.2 Columbite was mined in the Morabisi area of the Mazaruni River from 1952 to 1959, when mining ceased because of a fall in its price in the world market.

16.I.6.3 In the 1960s copper was discovered at Groete Creek; lateritic nickle quantified at Blue Mountain; and molybdenum (molybdenite, and tungsten (scheelite) identified at Eagle Mountain. Numerous sulphide and iron ore occurrences and industrial minerals such as talc, kaolin and magnesite have also been identified over the years in different parts of the country. Uranium was extensively prospected for in the early 1980s.

16.I.7 Petroleum

16.I.7.1 Guyana's hydrocarbon (petroleum and natural gas) potential was noted since the 1850s, with the first well being drilled in the Waini Estuary in 1917. Exploration for hydrocarbons continues today in the coastal onshore, coastal offshore and the Takutu Basin.

16.I.7.2 The Takutu Basin, which is situated in the southwest of the country and straddles the Guyana/Brazil border, is the only area in which petroleum has so far been found. The Guyana portion of the Takutu Basin is approximately 10,300 sq. km. In 1979 Home Oil Canada conducted a seismic programme and drilled two wells. The second well, Karanambo-1, was a discovery well producing 400 barrels of oil per day, apparently from fractured Apoteri Volcanics. Home Oil was hampered by the remoteness of the discovery area and the absence of infrastructure.

16.I.7.3 Statistics such as gross unit thickness, net sand/carbonate and porosity indicate good reservoir potential in the Offshore Basin. For the offshore, the reservoir potential seems to be best in the Tertiary Carbonates and clastics even though there is reservoir potential in intra-Cretaceous formations such as the Stabroek Formation.

16.I.7.4 Ten exploratory wells have been drilled in offshore Guyana since 1967. In that year Teneco drilled the first. Total drilled the last in 1992. However the government of the country has recently entered into an agreement with CGX Energy Inc. giving this company permission to drill offshore, in the Corentyne area.

16.I.7.5 There is, as yet, no petroleum production in Guyana.

16.I.8 Sand

16.I.8.1 Silica sands, which are widely dispersed in the northeast of Guyana, cover about 5,000 square miles of the country. The white sands are a vast resource of high-purity silica oxide.

16.I.8.2 In 1993, for the first time, silica sands were exported to the Caribbean region, where their superior quality as a feedstock for glass manufacture, as a construction and land fill material, and as a basic input in golf course development has been recognized. Their future development in this regard will, in large measure, depend upon whether the near intractable large bulk transport problem which confronts the Caricom region is solved. Environmental considerations, associated with the preservation of tourism including beaches in Caricom, may make the nearly inexhaustible silica sand deposits of Guyana a shared strategic resource of the region.

16.I.8.3 The sands are also critical to the civil works and building sectors of the economy. Their utilisation as a land fill, concrete and asphaltic base, and in other industrial processes, such as porcelain and cultured marble manufacture, making them a resource without which development could be seriously curtailed.

16.I.8.4 The sands were used, in the 1970s and 1980s, in the production of glass at Yarrowkabra. However, the facilities were closed for reasons totally unrelated to the quality and availability of the sand resource.

16.I.9 Coarse grained aggregates

16.I.9.1 Coarse grained aggregates for roads and other civil works, building construction and sea defences have been produced in Guyana for well over a century.

16.I.9.2 Because of their relatively low value, and therefore the necessity to access cheap transport, all of the rock quarries were located along the Essequibo, Demerara, Berbice, Mazaruni, and Cuyuni rivers. Over the passage of time, eight quarries were operated in the Essequibo River, nine in the Mazaruni River, one in the Cuyuni River, four in the Demerara River, and one in the Berbice river. At the present time, only the St

Mary’s and the Monkey Jump Quarries on the Essequibo River, and the Teperu/Itabu Quarry, now called Mazaruni Granite Products Limited, on the Mazaruni River are being actively worked.

16.II ISSUES AND CONSTRAINTS

16.II.1 Regulatory Regime

16.II.1.1 There is currently no dedicated Minister of Mines. Although the Prime Minister holds the portfolio, he is not in possession of any ministerial staff in support of the concept–utilisation formulation and implementation of policy. This is an almost untenable situation, which often appears to lead to the neglect of the sector at every level.

16.II.2 Investment and the Tax System

16.II.2.1 It is extremely important that we immediately begin to mobilise the risk capital and investment funds that are needed for the sound and early development of our mining sector. Investment, as we have repeatedly emphasized elsewhere in this document, is urgently needed if we are going to be able to propel our economy into the 21st century. Over the last decade our mineral growth has been achieved almost entirely by the private sector. Future growth will continue to depend on our capacity to attract to our country foreign mining companies with the technical and managerial capability to find new deposits and develop new operations. Mining investments are capital–intensive, and usually involve time–horizons of ten to twenty years or more. Investors therefore require competitive terms and conditions, and solid assurances that the investment environment will be stable.

16.II.2.2 Guyana’s current tax structure for the mining sector is not, on the face of it, competitive. It includes charges of five percent royalty on gold, three percent on diamonds, and a thirty–five percent corporate income tax. Both the royalty and the corporate income tax are located in the upper echelons of international norms. Indeed, the former is especially, considered to be one of the highest in the Commonwealth.

16.II.2.3 In a comparative study of the mining tax regimes of various countries, which was published in 1996, the following percentages of pre–tax mining revenues, which would accrue to governments, prevailed:

Chile	15.00%
Bolivia	27.06%
Venezuela	32.82%
Peru	36.52%
United States	36.61%

Mexico	37.21%
Botswana	40.10%
Brazil	40.85%
Argentina	46.13%
Canada	46.71%
Guyana	48.16%
Australia	50.60

16.II.2.4 The study also analysed the Government’s share of the profits repatriated to shareholders abroad. Those shares were as follows:

Venezuela	32.8%
Chile	35.0%
Bolivia	36.2%
Peru	36.5%
United States	36.6%

Mexico	40.3%
Brazil	40.9%
Argentina	46.1%
Botswana	49.1%
Canada	49.4%
Australia	50.6%
Guyana	55.9%

16.II.2.5 The fact that Guyana ranks at or near the bottom of both lists ought to be a matter for concern in terms of our capacity to attract investors for mining activities. It is not necessary for Guyana to move to the top of the list, but its present situation clearly puts it at a competitive disadvantage internationally.

16.II.2.6 Both import and export duties are fiscal measures used in Guyana to secure revenue. Although in recent years customs duties on some major mining equipment have been waived, miners have expressed the opinion that the 15–20 percent import duty, which is still charged on several mining inputs, is excessive and burdensome. A more relevant concern may be the range of variation in such duties.

16.II.2.7 Local miners experience great difficulty in obtaining investment capital to develop their claims or permits. Mining requires extremely high risk equity or loan capital, the potential returns on which are not easily gauged because local miners are usually unable to provide quantitative measurements and reliable estimates of the minerals located in their enterprises. Moreover, their mining operations are located in remote areas which are not easily accessible. These two factors make financial institutions extremely reluctant to finance investment in mining.

16.II.2.8 Any Government of a mineral-rich developing country, such as Guyana, that is interested in expanding the mineral sector with foreign investor involvement, and that is eager to reap substantial benefits from it while ensuring both technical and economic efficiency in exploitation, should have in place a fiscal regime that satisfies, at least, the following criteria:

(i) as a general rule, the tax system should be so structured that it may be expeditiously applied in a variety of projects and circumstances. The process of formulating a unique fiscal regime for each project is not only time-wasting, it often creates confusion. A standard fiscal regime is one of the most attractive elements of

policy to investors. This is not to say that the same tax system should be applied to all types of minerals., What is being stressed is that its rules should be the same for gold, the same for diamonds, the same for bauxite, and so on;

(ii) the fiscal regime should also show a reasonable sensitivity to the investor's ability to pay the dues that are imposed, so as to avoid, as far as possible, creating financial strains that may jeopardize the viability of the project. At the same time, it must reflect the legitimate aspirations of the Guyanese public;

(iii) stabilisation agreements should be included as a cornerstone of the mineral policy. A thoughtful and well formulated standard contract should amply serve the best interests of mining investors and relieve the Government of what would otherwise be the potentially unmanageable burden of negotiating untold numbers of such agreements; and

(iv) the investor and the Government should be able to foresee the fiscal consequences of alternative actions in managing the project or of events occurring in the international market that affect project operations.

16.II.2.9 From an investor's viewpoint the royalty rate and the free equity provision which have become standards in most mining agreements in Guyana are somewhat controversial. The royalty rate of 5 percent, which as has been pointed out is at the very top of the international scale, also causes special problems in the case of gold, where it encourages leakages of the product across the hinterland borders to neighbouring countries, and other forms of evasion. In this case, a complicating factor is that the borders are quite permeable. Indeed, access to neighbouring countries from some hinterland mining districts is easier than access to Georgetown. Hence in practice the attempt to sustain the royalty rate above that of Brazil's, for example, results in reduced declarations nationally.

16.II.2.10 Investors also contend that royalties, because they are payable whether or not losses are incurred, are in some respects unfair. It should be noted that many mining countries have no royalty provisions, and those that do typically have a rate of 2 or 3 percent.

16.II.3 Shipping

16.II.3.1 Because it is difficult for large vessels to dock at the local ports trading opportunities are adversely affected. The high cost of shipping also contributes to making Guyana's exports uncompetitive, particularly in the bauxite subsector. For example, it is cheaper to ship bauxite from Australia and Jamaica to Europe than from Guyana. This obviously serves as a deterrent to the attraction of foreign direct investment. The reason for this high cost is the depth of the approach channels to the Demerara and Berbice rivers from which bauxite is shipped. Until recently, these channels, even after substantial dredging, have had depths of 30 feet and 18 feet respectively, allowing vessels to load a maximum of 22,000 tons capacity. The proposals in this Strategy for the construction of two deep water harbours would go a long way towards the alleviation of this problem.

16.II.4 Poor Accessibility to Services in the Hinterland

16.II.4.1 Guyanese residents in the hinterland do not have proper access to essential services such as education and health. This is caused in part by poor connectivity and accessibility, in terms of both quantity and quality, and the high cost that this engenders. This issue hinders investment in resource extraction activities in the interim. The net effect is to compromise significantly hinterland and, indeed, the entire country's development.

16.II.5 Gold Marketing

16.II.5.1 Considerable controversy has arisen over the role of the Guyana Gold Board which is a holdover from a different era of economic policy. Independent miners resent the monopoly position of this Board, the necessity to travel from their hinterland sites to Georgetown to declare and sell their gold, and the high royalty rate applied to those sales. These circumstances are unfavourable for all concerned in that they tend to promote evasive behaviour, especially when the difficulty of monitoring border crossings for transactions in other countries is taken into account.

16.II.5.2

Transportation Costs

16.II.5.3 Some mining areas are located on the periphery of our national borders while others are found in equally remote areas. As a result, access to these areas (all lacking in infrastructure) is only possible by chartering private aircrafts. Because of this, small miners are unable to make regular flights in or out of the interior. Consequently, a not inconsiderable amount of the nation's gold and diamonds is not sold to the Gold Board and to local licenced diamond traders, but is leaked into the economies of our neighbours.

16.II.5.4 Moreover, there appears to be no policy to build new roads to service either areas with mineral endowments, or those in which mineral discoveries have already been made. Indeed, not much effort is displayed even to maintain and repair those that do exist. The wheel and hub concept can be developed where a few airstrips, capable of handling large aircraft can serve as staging points for distribution by smaller planes thus taking advantages of the cost effectiveness of the larger aircraft.

16.II.6 Availability of Suitable Labour

16.II.6.1 The mining industry is faced with shortages of local geologists, engineers, and drillers among others, basically because the University of Guyana is not currently attracting, and is not capable of adequately training, a sufficient number of candidates in fields relevant to the mining sector. Moreover, very few scholarships are being offered. In addition, the graduates from the University of Guyana have limited field experience.

16.II.7 Land Titling and the Mining Sector

16.II.7.1 Under the Mining Act all minerals are vested in the State. In relation to the demarcation of Amerindian lands, under the current laws of Guyana different enterprises could have rights to different minerals within the same land unit. This provision could potentially cause problems. Furthermore there is currently no clear land use policy. As a result, conflicts among rights holders, in general, but particularly between those who possess surface and sub-surface rights, are common. In addition, there are numerous examples of agencies granting rights for which they have no mandate.

16.II.8 Alienation Schemes and Practices

16.II.8.1 The system of Property Rights associated with industrial minerals is adequate. There is, however, an unclear definition of the manner of the treatment of competing land uses. The area of conflict surrounds what priority use if any is accorded the surface rights holder viz-a-viz the mineral rights holder, if in fact they are separate. No guidelines or mechanisms are in place to help in predicting with some assurance the optimally beneficial outcome.

16.II.8.2 Silica sand which is a very low-value product is being treated in the same manner as high-value gold. The rental rate on large-scale silica developments is punitive and should conform to comparable rates, as in the aggregate business.

16.II.8.3 Exorbitant import duties continue to be applied to machinery, equipment and supplies that are bound for the quarry sector. These constitute a barrier to the flow of investment in an industry which needs new investment for retooling and expansion.

16.II.9 Bauxite

16.II.9.1 Most countries that are endowed with bauxite almost exclusively produce the ore for the manufacture of alumina and aluminium. Guyana has, however, acquired the status of being a diversified bauxite producer with bauxite that is meant for aluminium production – (metallurgical bauxite (MAZ)) accounting for the smaller percentage of its total production. The major proportion of the sector's output was in non-metallurgical bauxite, especially Refractory bauxite, for which it had a monopoly and which was more profitable. In assessing the future market prospects for the industry it is, therefore, necessary to evaluate the different markets for its products, especially since they are affected by different economic, technological and market forces.

16.II.9.1 The specifications for metallurgical bauxite and its mineralogical composition have changed considerably over the years. These developments have widened the choices of the aluminium producers for sourcing bauxite, and have resulted in bauxite prices falling in absolute terms over the past 20 years or so.

16.II.9.2 Guyana's bauxite has always ranked among the highest quality metallurgical bauxites in the world. In addition to being consistently high in recoverable alumina, it possesses a pure gibbsite, and has excellent settling characteristics. The only disadvantages are its low iron content. This is especially significant because of the increasing emphasis that is now being placed on high purity aluminium. However, while Guyana's bauxite in its current form would hardly be used as the total feed for an alumina refinery, it is highly desirable as a sweetener in the alumina process.

16.II.9.3 The supply of world bauxite is going through significant changes. Because most of the world's low-cost, high-grade bauxite deposits are nearing exhaustion, a high percentage of the increase in bauxite demand, by those alumina refineries that are dependent upon imported bauxite, has come over the past 15 years, from the expansion of *existing* bauxite mining capacity. Indeed, Aroaima Bauxite Company (ABC) has been the only new project undertaken over that period. However, the two existing projects providing the bulk of that increase are approaching the limit of low-cost expansion, hence new projects could become competitive. Moreover, certain technical deficiencies make the bauxite that is produced by those companies which had earned the bulk of the supply unsuitable for low temperature digestion refineries and costly for high temperature ones.

16.II.9.4 With all these developments pointing toward higher cost and, to some extent, lower quality bauxite, Guyana's bauxite which is still of the highest grade, both in terms of recoverable alumina and mineralogy, has become most competitive. For example, ABC has demonstrated that Guyana is in the lowest percentile of new bauxite developments, in terms of capital cost per annual tonne of capacity – ABC being under US\$30 per tonne, compared with an estimated US\$46 to US\$70 by other producers. ABC has also shown that with a project of the appropriate scale of production and efficient management, Guyana could become competitive in the metallurgical bauxite market. The establishment of the Berbice deep-water facility has also significantly reduced the freight disadvantage suffered by Guyana, thereby widening the country's markets and enhancing its competitiveness.

16.II.9.5 It should also be noted that all experts agree that there will be a most significant increase in the demand for aluminium, which is based on metallurgical bauxite, over the next 15 years or so. Indeed it has been estimated that an additional 60 million tonnes of metallurgical bauxite would be required by the year 2015. Regardless of the location or strategy for the increased aluminium capacity, the additional bauxite would have to come from countries with bauxite resources. It is therefore more

than probable that Guyana would be in an excellent position to meet some of the world's growing demand for MAZ, provided that its companies are adequately financed.

16.11.9.6 The production of Refractory bauxite constitutes its second largest application. However, with the lack of growth in the Refractory bauxite market and the dramatic fall in RASC sales over the past 10 years, the industry needs to reassess its positioning in the refractories market, and consider itself as a supplier of High Alumina Refractory raw material rather than just a producer of Refractory bauxite (RASC). The rationale for this form of product diversification exists in the raw-material, in the technology, and in the production base available to Linmine. However, data on the production and consumption of high and special alumina refractory materials are limited. A more detailed study would therefore have to be undertaken. Evidence suggests, however, that Guyana might be able to compete also in this area.

16.II.9.7 Although there has been a fall in the demand for chemical bauxite from around 600,000 tonnes in 1980 to the current level of 300,000 tonnes, Guyana satisfies about 75 percent of the market.

16.II.9.8 The scale of operation of both Linmine and Bermine is well below the minimum for a viable operation in a mining activity involving the stripping of overburden, with overburden to ore ratios in excess of 4:1. The two operations are probably the smallest in the world, except for a number of small chemical and cement grade bauxite operations in a number of countries that satisfy small domestic demand. The companies are forced to maintain, to some extent, an infrastructure established for operations three to ten times their current levels. Moreover, in spite of a significant reduction in personnel, the companies still carry staff two to three times that of operations of similar size. **To put it plainly, the current scale of operations of both Linmine and Bermine is too low for them to be efficient and to become financially viable. The companies are involved in a highly capital intensive industry and must achieve a certain minimum scale to be efficient. While Bermine has recently earned a small profit and is operating just above break-even-point, it needs a substantial increase in the scale of its operations to earn an acceptable rate of return. Linmine continues to make losses and would also need substantially to increase its scale of operations if it is to become viable. The two companies also compete with each other. Their operations therefore cry out for rationalisation.**

16.II.9.9 The most fundamental issue which faces LINMINE is that its cost of production is above the price received for its product. As a result it annually incurs net losses which are met by the Treasury. This high cost of production is, in great part explained by the presence of a thick over-burden which must be removed before the bauxite ore is reached. The other reasons for LINMINE's relatively high cost of production are (i) the high cost of transportation, particularly because of the absence of a deep water harbour and the consequent necessity to transport smaller than optimal loads; and (ii) the cost of still providing a number of community services, even though the company has been relieved of the duty of supplying many of them.

16.II.9.10 Moreover, it is reported that because it is now no longer in charge of its electricity supplies, the cost has increased, and regularity in supply is no longer assured.

16.II.9.11 It cannot be over-emphasized that a major disadvantage in exploiting Guyana's reserves is the depth of overburden. Indeed, this was the major factor behind the country's loss of competitiveness in the MAZ market and, hence, the virtual stagnation and later decline in production of this product. This depth of overburden also has an impact on the competitiveness of RASC, which is now in competition with Chinese and Brazilian refractory bauxite, fused aluminium oxide and calcined alumina made from bauxite produced in countries with low mining costs.

16.II.9.12 RASC, upon which heavy dependence was placed in the past, now faces a static and fiercely competitive market. The possibility exists, however, that Guyana could enter the wider high alumina market, producing along with regular RASC, materials with lower and higher alumina content for which there is

substantial market. Investment in additional processing facilities is needed for this development, but the main advantage lies in the fact that the raw materials for production of those materials currently form part of the overburden which is removed and discarded in the mining process.

16.II.10 Gold

16.II.10.1 The demand for, and the price of, gold are projected to rise from their relatively low state in the medium and long term. The International Monetary Fund has forecast that the American economy will sustain its remarkable economic growth, at least in the medium term. Moreover, the European economy has begun to recover and the signs are that this recovery will be prolonged. In addition, the emerging economies which were so badly financially battered in 1997 and 1998 are already displaying strong resilience. All this suggests that the prospects for gold are most encouraging.

16.III OBJECTIVE

16.III.1 The overall objective of the national strategy for mining is to establish the foundations for the continuing growth of the sector so that it may contribute to the economic growth of the country, the equitable geographical distribution of economic activity throughout the nation, the diversification of our economy, the penetration of our hinterland, and the eradication of poverty, particularly in depressed interior areas.

16.III.2 Put in another way, the sector's primary objective is to consolidate the gains it has made over the years, to set the stage for the expansion of production of both existing as well as new commodities, and to diversify and increase the value of its primary products by value added manufacturing and other down stream processing.

16.IV THE STRATEGY

16.IV.1 Fiscal

16.IV.1.1 There will no longer be any special agreements in respect of the mining sector. The fiscal regime will be so structured that it could be applied to a variety of projects and in a number of circumstances without wasting time and resources in devising a unique set of arrangements for each project.

16.IV.1.2 There will be a standard regime for each mineral or set of minerals.

16.IV.1.3 The royalty rate for gold will be on a sliding scale based on a maximum of 3 percent of the prevailing price of gold.

16.IV.1.4 A half percent royalty will be paid, for exploitation on Amerindian lands, into an Amerindian Development Fund, from the existing royalty stream

16.IV.1.5 The corporate income tax rate will be fixed at 30 percent for all mining projects.

16.IV.1.6 Export duties on minerals will be reduced to zero.

16.IV.1.7 The consumption tax on fuel will be 10 percent CIF. A coupon system for miners will be put in place.

16.IV.1.8 The consumption tax and duty on mining equipment, spares and supplies will be zero rated.

16.IV.1.9 The withholding tax on repatriated dividends will be fixed at 6.25 percent, which is the rate applied in the case of Omai, rather than the 15 percent rate that is normally applicable.

16.IV.1.10 A special commission will be convened to determine new, land rental rates in mining and to develop a sliding scale which correlates rental rates with the length of time the claim is held without beneficial occupation.

16.IV.1.11 However, rental rates on mineral land during the exploration stage will be fixed at

US \$ 0.12/acre – Yr1

US \$ 0.175/acre – Yr2

US \$ 0.225/acre – Yr3

US \$ 0.275/acre – Yr4

US \$ 0.325/acre – Yr5

16.IV.1.12 A special tax will be applied to the purchase and to the operation of missile dredges, the proceeds of which will be deposited in a special fund to be used for the rehabilitation of river banks. The Environmental Protection Agency will oversee the management of the fund and the rehabilitation activities.

16.IV.1.13 A special reduction of the income tax to 25 percent will be offered to any company that sets up a regional gold processing mill, receives ore from independent miners for processing, and uses technologies that minimise the environmental impact of the processing (e.g., that do not result in discharges of mercury in the waterways). While exceptions to the tax code should be strictly limited, this one is justified because of its beneficial environmental externalities. Mercury is particularly long-lasting and pervasive in its transmission through the food chain, thus endangering public health.

16.IV.1.14 Because mining operations deplete mineral resources, up to half of the royalty income from mining will be allocated to a Fund for Guyana's Development that will be invested appropriately in long-term instruments and whose interest earnings will be allocated to projects concerning infrastructure, the environment, poverty alleviation, housing, and health care, according to special regulations formulated for the utilisation of the Fund.

16.IV.2 Gold Sales

16.IV.2.1 There will be a system of licensed and bonded buyers of gold. Each person or corporation that wishes to become a licensed buyer must submit financial statements, provide bonds against liabilities for

royalty remittances, and must show a programme that involves a physical presence in the interior for at least part of each year. The buyers will be responsible for remitting the royalties to the Government. Buyers will invoice all purchases and sales of gold and will be tightly supervised by the GGMC.

16.IV.3 The Environment

16.IV.3.1 As noted above, Government will take steps to mitigate the harmful consequences to the environment of some types of mining operations, through the fund for the restoration of riverbanks and the fiscal incentives for regional gold processing mills.

16.IV.3.2 In addition, GGMC will make inspections on a continuing and regular basis to assess the state of the art in mining and milling technologies, with the aim of ensuring that the most appropriate and up-to-date environmentally-friendly methods are utilised in Guyana. In mining contracts, fines for incidents of negligence such as the collapse of tailings dams will be significantly increased.

16.IV.4 Administration

16.IV.4.1 The GNRA will be abolished and all its relevant authority transferred to an adequately staffed and equipped Ministry of Natural Resources.

16.IV.4.2 The GGMC will be completely reorganized and restructured with a separation of roles; the Ministry will deal with legal, administrative, financial and policy issues and the GGMC with technical, monitoring and regulatory issues. The GGMC will divest itself of all service functions. These will be outsourced to organizations better capable of providing quality and cost effective services.

16.IV.4.3 The mining industry will be overseen by a standing committee of parliament.

16.IV.4.4 The GGMC will commission a national mineral resource inventory and assessment, and publish the results for wide dissemination.

16.IV.5 Security of Titles and the Nature of Concessions

16.IV.5.1 The 1989 Mining Act contains sound dispositions with respect to mining titles. Nevertheless, in practice, confusion continues to arise and there appears to be too great a discretionary element in the awarding of these titles. These discretionary elements will be removed. A tighter set of regulations for the Act, in this area, will be formulated. This is a crucial issue from the viewpoint of investors and it is in our own interest to eliminate the ambiguity surrounding it.

16.IV.5.2 A related issue concerns the uses to which a concession may be put. Once the concession has been issued, different kinds of minerals may be discovered or, on the other hand, some concessionaires may be disappointed in the quality or quantity of the deposits and decide that the forest resources on the land are more valuable than the minerals. Accordingly (i) if the additional minerals occur in association with the first ones, then the original mining contract will continue to apply; and (ii) if the additional minerals occur substantially separately, and require a separate mining operation on the same land, a new contract will be drawn up.

16.IV.5.3 In the event that the concessionaire wishes to transfer all or part of the concession to a non-mining use, then he or she may freely do so, negotiating a price with a new concessionaire, and paying a transfer fee to GGMC. This policy is exactly that adopted by the forestry sector, for the reverse case of forestry concessions, or part of them, being transferred to mining uses. This policy helps to ensure that land is optimally utilised, and that the appropriate regulatory agency is adequately informed of the transfer process.

16.IV.6 Social matters

Industry Study

16.IV.6.1 An indepth study of the industry will be jointly undertaken by the Government and the private sector. This industrial profile will, inter alia, provide all relevant information on the technologies that are utilised and applicable to the sector, its profitability, its contribution to the national economy, and its demographic, social and cultural attributes.

16.IV.6.2 GGMC will collaborate with the Ministries of Health and Education in undertaking social surveys in the mining communities. The results of the surveys will be distributed to mining operators and miners associations. Medium and large operators will be encouraged to make special contributions to health and education projects in the communities where they are present.

16.IV.6.3 GGMC will collaborate with the Ministry of Health in the design and implementation of an urgent and massive programme of malaria control in the hinterland.

16.IV.7 Roads

16.IV.7.1 Miners will be compensated either by being permitted to charge user fees or by a reduction in the fees they are legally obliged to pay the government, or by any other arrangement entered into with the GGMC, whenever the roads which they build form part of a centrally approved national road network plan, and on condition that the extraction routes are constructed to specific requirements and are maintained to those specifications.

16.IV.7.2 The use of secondary roads by other parties will be regulated by private agreements between the concessionaire and those parties.

16.IV.8 Bauxite

16.IV.8.1 As has been pointed out, it is essential in formulating a strategy for the development of the bauxite sector in Guyana that certain factors be taken into account. Among these are (i) the importance of the bauxite industry to the social and economic environment of the areas in which the industry is located; (ii) the extent and quality of our bauxite resources; (iii) the status of future markets; and (iv) the international structure of the industry.

16.IV.8.2 Because the quality of life and the standard of living of the inhabitants of almost an entire region depend upon the existence of the bauxite industry, the companies which mine, and process and sell the ore should not be allowed to collapse without a further effort being made to rescue and revive them, provided that it can be demonstrated that the companies can be made profitable within a reasonable period of time.

16.IV.8.3 Recent studies have indicated that there exist more than sufficient reserves of bauxite in our country, of the highest quality, to permit both national bauxite companies, LINMINE and BERMINE, to produce a range of types of product, for which there are ready markets. Moreover, the available evidence strongly suggests that both companies can be financially viable provided that they expand their operations, and provided that they receive adequate injections of capital.

16.IV.8.4 The bauxite–alumina–aluminum industry is falling more and more under the control of a small group of multi–national corporations. In other words, the industry is essentially managed and controlled by private enterprise in the form of the multinational grants. It might therefore be to our advantage to try to

involve one or other of these multinationals in the funding and ownership of the two national companies.

16.IV.8.5 It cannot be too strongly emphasized that if the formulators of this National Development Strategy did not consider the industry to be potentially profitable it would have been allowed to wither away and die, and other non-bauxite strategies would have been put forward for the region's development. This, however, does not appear to be necessary, at this stage, because of the arguments adduced in the preceding paragraphs.

16.IV.8.6 Accordingly, both BERMINE and LINMINE will be supported for a maximum period of four years, beginning on 1 January 2001. This support will be in the form of loans from commercial banks that are guaranteed or otherwise underwritten by the Government of Guyana, or in any other form that can be negotiated either with bi-lateral or international donors. The Government will seek the approval of the Bretton Woods institutions to enter into any such arrangements, if, by so doing, their conditionalities will be breached.

16.IV.8.7 While this essential expansion and rehabilitation process is proceeding, further efforts will be made to privatise the two companies. However, the necessarily long and tedious privatisation process will not be followed. Instead, prospective investors, selected from the major multinationals, will be directly approached with proposals for them to enter into joint ventures with the government and the management and workers of the enterprises. The proposals will embrace two options: they will be given the choice either to capitalise LINMINE or BEMINE separately, or to take them over and run them as a single entity.

16.IV.8.8 If acceptable offers are obtained for the separate purchase of the enterprises, then the ownership models will be different. Because BERMINE lends itself to a joint venture agreement in which the foreign financier, the government and the management/workers will be owners, with the controlling interests being held by the foreign participant, this will be the arrangement. However, in respect of LINMINE, the participation of the management/workers in equity holdings will not be pushed.

16.IV.8.9 In all these options, there will be five-year income tax holidays; the importation of machinery, equipment and spares will be duty-free; as will be the importation of Bunker C fuel oil and diesel fuel.

16.IV.8.10 While the fate of the bauxite companies is being settled, urgent steps will be taken to diversify the economy of the region in which they are located. This will be attained through the provision of a range of incentives for investment in the area, the provision of micro-credit to develop a cadre of small and medium scale enterprises in agriculture, commerce and manufacture; and the improvement of its social and physical infrastructure.

16.IV.8.11 In addition to the arrangements which have been proposed for LINIMNE and BERMINE, an intensive sales campaign will be mounted to attract investment in an entirely new bauxite mining operation, for which there exist ample reserves. This course of action is not directly linked with the possible privatisation of the two enterprises. It might however, assist in the redeployment of labour, should the worst occur.

16.IV.9 Petroleum

16.IV.9.1 Guyana will continue to utilise the Production Sharing Contracts (PSC) in its arrangements with oil exploring and production companies. The PSC is almost a standard in the petroleum industry today. The important distinction between the PSC and concessions is that under PSCs the state retains ownership and control of the resources. In Egypt the government retains 85 percent of the profits, while the Libyan government keeps 81 percent. However, the ratio between the Government of Guyana and CGX, Energy which is to begin oil explorations off the Corentyne coast by mid 2000, will be on a 50:50 basis, if

commercial quantities are discovered.

16.IV.9.1 Although committed to the PSC, extensive studies of the share that has been negotiated by other government in these types of activity will be undertaken in order to ensure that while we remain competitive, we do not make unnecessary concessions.

CHAPTER 17

MANUFACTURING

Manufacturing and agro–processing are defined in this National Development Strategy as the application of technical knowledge and processing equipment, in alliance with capital and labour, to the transformation of locally available or imported raw materials and/or intermediate inputs, into final or intermediate products. These include agricultural (marine, forestry, livestock, crops), industrial and mineral materials.

17.I BASIC FEATURES OF THE SECTOR

17.I.1 General

17.I.1.1 Guyana is manifestly rich in commercially exploitable natural resources. Moreover, North America, Western Europe, and the islands of the Caribbean appear to offer immense market opportunities for manufactured products via the enabling CBI, Lomé and CARIBCAN arrangements and the CARICOM single market. On the face of it, therefore, Guyana could readily develop the required competitive advantage for the production and export of manufactured products. In spite of these potentialities, however, growth in the manufacturing sector has been limited. Indeed, with the exception of bauxite processing and sugar milling, the sector has not contributed significantly to the gross domestic product of the country.

17.I.1.2 In Guyana, the secondary sector's share of GDP was actually higher in the period 1950–75 than it has been in recent years. In part, this has been because of the absence of rational and conducive policies at the macroeconomic level specifically for the manufacturing sector and, in part, because of the failure of local investors to display the required initiative. Nevertheless, in recent years, the number of manufacturing units has risen significantly and, in key subsectors such as engineering and wood products, there has been noteworthy expansion in average plant size. Moreover, while natural resource–based subsectors, such as wood processing and agro–processing, account for the bulk of the employment in manufacturing, there are other subsectors of importance, such as textiles and metal working.

17.I.2 The Subsectors of Manufacturing

Minerals, Sand, Stones, Rocks and Clays

17.I.2.1 Although Guyana is well–endowed in mineral resources, the only minerals exploited to date on a commercial basis have been manganese, bauxite, gold and diamonds. Semi–precious stones are available extensively but are not yet utilised in any meaningful amount. Petroleum is known to exist but is not commercially produced. There are widespread deposits of clay types suitable for a variety of ceramic applications, but only a few are being used. Apart from construction and recreation, for which it is being used locally and exported in small amounts, sand is also a vital raw material in the manufacturing process which is virtually neglected in the manufacturing process in Guyana. Bauxite and gold are the only products from the earth which have been subjected to some amount of processing and yet, all these products have significant long–run potential as inputs for enhancing the contribution of the sector to Guyana's development.

Marine Products

17.I.2.2 The marine subsector has been a cornerstone of the economy in processing and exports for a number of years. It includes plants for the processing, deep freezing, packaging and storage of prawns, seabob, and some finfish. The bulk of the prawns caught are beheaded and/or shelled, blast frozen, packaged

and exported to markets in North America.

Forestry Products

17.I.2.3 Products derived from wood draw upon the extensive forest resources of Guyana. The forest products subsector is highly segmented and embraces logging, sawmilling, plywood manufacture, charcoal production, furniture manufacture, and prefabrication. Sawmilling and plywood operations tend to be vertically integrated. In recent years, the subsector has attracted significant foreign investments, inducing extensive competition in the market, and forcing local firms to upgrade their technologies and improve their management systems in the battle to retain and improve their share of the market.

17.I.2.4 The most positive developments in the subsector, over the last dozen years or so, are the emergence of plywood as a principal export, and the expansion of production and export of furniture.

Dairy and Livestock

17.I.2.5 Some of the production centres for dairy and livestock, inclusive of beef, mutton, pork, poultry, eggs and milk, are spatially mismatched in relation to the demand points. This is particularly true of beef, in which the country largely satisfies its needs. There is significant importation of chicken and eggs from North America, and milk products from Europe.

Dairying

- Dairy production is concentrated along the coastal belt in order to facilitate quick access to markets. There are only three large commercial units with modern milk processing facilities. Two of these companies do not appear to be effectively run. The bulk of the existing milk production comes from farmers located in close proximity to Georgetown, with between one to twenty–five head of cows.

Beef

- The Rupununi has immense potential for the expansion of beef production. The realisation of this potential has, however, been somewhat stymied by the region's inaccessibility to markets. The completion of the road to Lethem and the lifting of restrictions on air traffic will provide great assistance to production in this area in the future. However, despite the experience of the Rupununi, beef production has been on the increase overall.

Mutton

- This is the least popular meat in Guyana. Recently, however, demand for it appears to have surged. In the Guyana context it is not a versatile meat that readily lends itself to processing activities. This may change in the medium term as tastes become more sophisticated, and as the demand for meats in general continues to grow.

Pork

- Pig farming is generally small in scale and is, as a rule, part of mixed farming operations. Pork is the third ranking meat by volume. Two large operations have modern facilities for the dressing and packaging of this product, and for the manufacturing of ham, bacon and sausages.

Chicken and Eggs

- By far the most popular meat in Guyana is chicken. However, the expanding production only partially satisfies ballooning demands, the bulk of which is met by imports from North America. Imports also account for most of the eggs consumed locally and for those used for the reproduction of meat birds and layers. This component of the subsector is dominated by medium–sized farms which rear between one thousand and five thousand birds on a batch basis.

Processed Foods

17.I.2.6 Guyana boasts an extremely wide variety of foods which are manufactured locally for both the domestic and export markets. The traditional products have been rice and sugar. However, although there has been a most significant increase in the production of non-traditional foodstuff (juices, beverages, condiments, jams and jellies, and starch powder) because of liberalised trading policies, the influx of foreign products has not abated. Moreover, although the quantity and value of non-traditional exports have consistently risen, over the last decade or so, demand has consistently outstripped supply for both domestic and overseas markets.

17.I.2.7 The New Guyana Marketing Corporation is responsible for advising farmers and manufacturers on production, processing and the marketing of non-traditional agricultural products. However, this institution does not have sufficient human and capital resources to dispense its mandate effectively.

17.I.2.8 Entrepreneurs engaged in local agro-processing are generally motivated by identifying niche markets particularly in the Caribbean and North America. However, greater emphasis ought to be placed on high valued products outside niche markets. Additionally, market research ought to focus on "off season" produce in North America and Europe. Mexico, Central America and Kenya have effectively utilised this strategy to export tomatoes to the USA and vegetables to Europe during seasonal "windows".

Metal Fabrication, Foundry and Machine Related Products

17.I.2.9 This subsector has been gaining momentum over the last decade or so, primarily because of the high cost of procuring metal products from overseas sources.

17.I.2.10 The major concentration in this sector is the manufacture of brass, iron castings, and pumps; and the fabrication of equipment for the sugar, rice and mining industries. Most of the items produced are for replacements or spares and for the repair of engine blocks and crank shafts. However, in more recent times, many companies have installed quite modern and sophisticated equipment and are manufacturing and fabricating top quality parts and components.

17.I.2.11 The scope for the development of this sector is great and new small operators surface on a regular basis to add to the ingenuity and innovation of Guyanese craftsmen who benefit from training courses at the local Technical and Vocational Institutes, the University of Guyana, the GITC and even from overseas training programmes.

Leather, Textile and Packaging Products

17.I.2.12 This subsector is not well developed but has the potential of making a substantial contribution to the growth of the economy. Given the heavy incidence of livestock rearing in the Lethem-Rupununi area, this Region can be seen as a potential area for the development of the leather industry in all its diverse forms (shoes, belts, bags etc.). Leather treatment facilities can be established quite easily and, with the relevant research and development programmes put in place, the prospects for a dynamic leather craft and related industries subsector should be bright.

Beverages

17.I.2.13 This subsector, which includes the distilling and/or manufacturing of soft drinks (aerated beverages), beer, malta, wines and rum, is becoming a very significant contributor to the manufacturing sector. In recent years, a greater degree of competition has been infused into the subsector with the two largest operators (DDL and Banks DIH) now introducing, on a regular basis, beverages of international brand names. Along with these two major manufacturers there is a number of smaller operators, primarily in the manufacture of soft drinks.

17.I.2.14 The manufacturers of the sector appear to be mainly devoted to import substitution. This subsector contributes significantly to the employment profile of the country.

Chemical Products

17.I.2.15 Guyana Pharmaceutical Corporation, the largest operator in this subsector, is involved in the manufacture and dispensing of a number of drugs, most of which are sold locally. There is scope for increased exports.

Paper-Related Products

17.I.2.16 Paper-related activities (printing, publishing, etc.) are undertaken by many computer companies, and Guyana Publications Ltd. They cater basically for the needs of the local inhabitants. Some operations, devoted to the production of simple packing materials, are based on imported paper.

Other Products

17.I.2.17 This category includes the operations of such companies as Guyana Refrigerators Ltd. (GRL), Colgate Palmolive Guyana Ltd., Demerara Tobacco Company Ltd. The important contribution of these to the economic well-being of the country lies in the import substitution nature of their products.

17.I.2.18 Within the context of a much broader and clearly articulated development strategy for the manufacturing sector, a number of small manufacturing entities can be established for the satisfaction of local needs, the important impacts being the saving of foreign exchange and the generation of more employment and income.

17.II ISSUES AND CONSTRAINTS

17.II.1 Regional Imbalances in Manufacturing Facilities and Inputs

17.II.1.1 A review and mapping of the processing facilities and inputs in Guyana would highlight an important inconsistency: raw materials that are meant to be processed are often not located where optimal returns are possible, if the high cost of transporting bulk commodities is taken into account. In other words, processing facilities are frequently not located where there are considerable low cost primary inputs. For instance, there is in Region 2 an abundance of coconuts, cassava, plantains, nibi, coffee beans, carambola, citrus fruits, pineapples and guava which readily lend themselves to the production of oil and animal feeds, pulps, jellies and jams, juices (fruits and citrus), chips, crisps, plantain and cassava flour, furniture, and ground coffee. Yet there are only two old, antiquated manufacturing operations in the Region producing jams and jellies of a quality that are sold country-wide and could possibly be exported. And although there has recently been established a coconut processing plant, there is still scope in the Region for the expansion of manufacturing capacity. The same is true for Region 9 with its vast potential for dried and processed meats, and cashew and peanuts.

17.II.2 Export Processing Zones and Industrial Estates

17.II.2.1 Industrial estates have already proven their usefulness as a mechanism for the promotion of manufacturing and agro-processing in Guyana. They offer the users benefits of externalities and scale and common services at significantly reduced unit costs. The industrial estates of Ruimveldt and Beterverwagting, where all the sites are beneficially occupied, are cases in point. For industrial estates to

succeed, they have to be located at the source of either labour, markets or materials. Moreover, adequate physical infrastructural facilities, such as access to transportation, power, water, and telecommunications are critical. The relative absence of these facilities partly explains why the Government seems to be having difficulty in encouraging genuine manufacturers, as opposed to land speculators, to avail themselves of opportunities at the Coldingen complex.

17.II.2.2 A recent version of the industrial estate which has attracted much attention is that of the science park. These estates are based on the application of high technology, and focus on activities with a high component of value added. Apart from requiring all the conditions that are essential for successful industrial estates, they depend on linkages with research and development institutions which supply relevant technological knowledge and advice. The science park concept will be explored in association with the National Agricultural Research Institute (NARI) and the Institute of Applied Science and Technology (IAST). In the case of NARI, viable ventures could be supported in, for example, the genetic propagation of high value, seasonal exports to temperate markets. Similarly, in the case of IAST, high technology manufacturing could be supported in the electrical and electronic fields. The Ministry of Trade, Tourism and Industry could spearhead their establishment, in consultation with the relevant private sector bodies.

17.II.2.3 The establishment of Export Processing Zones (EPZ) is another mechanism for the promotion of manufacturing and agro-processing, which has already been discussed. Although many CARICOM member countries have long established EPZs the success story of EPZs in the Caribbean is to be found in the Dominican Republic. There the concept, which was implemented in 1970, has been credited with the creation of nearly 200,000 jobs. The static short term gains from an EPZ are largely employment creation and foreign exchange earnings. However, the dynamic gains tend to be more diverse and are derived from the development of linkages between the EPZs and the primary and tertiary sectors. Without strong linkages of this nature, the danger that firms could pack up and leave the EPZ almost always exists. However, on balance, EPZs are strongly conducive to the expansion of manufacturing and agro-processing. The conditions for their success are similar to those of industrial estates and science parks. Hence, they pose no unique set of challenges in terms of establishment and operation. As such, they should be promoted. Here again, the Government, specifically the Ministry of Trade, Tourism and Industry, should consider their establishment and promotion.

17.II.3 Competitive Performance

17.II.3.1 While the manufacturing and agro-processing sector offers considerable scope for expansion in the future, it appears that at present a significant number of our industries might not be competitive. What is the source of the high costs? In a study which compared the manufacturing cost structure of Jamaica, St. Lucia, Grenada, and Guyana, it was found that Guyana was the *least* competitive of the countries. And this despite the fact that the wage rates prevailing in our country were the lowest. In Guyana the cost of energy and transport was double that of the other countries; the transaction costs, which include the time spent in consultations with the Government, were deemed to be the highest; and the technology that was generally utilised in the manufacturing processes was considered to be not appropriate.

17.II.3.2 We have to be an export-oriented economy if only because we do not possess a large enough, and rich enough, internal market to consume all that we can produce; if economies of scale are to be taken into account; and if only because it is absolutely necessary for us to earn foreign exchange. Maintaining competitiveness is therefore vital to our very survival. The issues raised here suggest that the very top priority must, accordingly, be assigned to sustaining a policy framework that aids competitiveness. This means that the liberalisation of the economy has to be taken to the point where the remaining vestiges of protectionism which sheltered and nurtured policies of import substitution manufacturing are dismantled, with some provisions being made, of course, for the stimulation of infant industries and the development of certain geographical areas of the country. In addition, we must begin to increase the competitiveness of our

manufactured and agro–processed exports such as rum, rice and sugar, that are subject to special preferential arrangements via CARIBCAN, Lomé and CBI, so that we would be in a position to respond effectively to the progressive decline in the level of preference dictated by the inexorable process of globalisation.

17.II.3.3 Adjustment of the sector to a market environment, in which competitive advantages drive output and exports, has become all the more urgent in the light of the irreversible enlargement of trading blocs and the avowed intentions of the WTO. However, the adjustment must proceed in a manner that minimises dislocation in social costs, specifically to the sector and the economy more generally. The proposed policy in manufacturing and agro–processing must address what could be classified as the key challenge to the sector, namely, the transition from protected and preferential markets to the dynamics of the competitive global market place. Once this is achieved, the sector would have been launched on the path to sustainable development.

17.II.4 Business Ethics

17.II.4.1 There is also need to focus on the ethical dimension of the conduct of representatives of the business community and, particularly, manufacturers who are also exporters or importers of final and/or intermediate products and/or base materials for transformation. This pertains to the strict and timely compliance with the existing laws, regulations and guidelines laid down by the competent authorities in the public interest. The private sector must recognise that, as its scope to operate is expanded via an improved enabling environment, its response to the ensuing challenge must in part entail a discernible effort to improve corporate behaviour. If this response is not forthcoming, it will become necessary to enforce the laws condignly.

17.II.5 Institutional Roles and Linkages in the Manufacturing Sector

Governmental Agencies

17.II.5.1 At the governmental level, the concerned agencies fall into two categories. In the first category, the apex institution is the Ministry of Trade, Tourism and Industry (MOTTI). The MOTTI is currently the responsible body for the manufacturing sector for policy making, implementing and monitoring. Specific aspects of its sectoral responsibility, such as the one stop investment promotion function and the trade promotion function, are vested in the Guyana Office for Investment Promotion (GOINVEST) and the Guyana Export Promotion Council (GEPC). Neither of these has yet achieved full effectiveness. MOTTI, which itself has retained core responsibility for the sector, does not have sufficient capacity for policy design. Its management is preoccupied with the day–to–day tasks and related activities of the management function, with little policy coherence. At the central level, the Ministry of Finance, through its fiscal, monetary and planning instruments can, and does, profoundly affect the course of the sector. MOTTI has not the capacity to relate to basic issues for the sector at the key political and technical levels. Indeed, there appears to be a distinct asymmetry in authority. Unless some balance is restored, MOTTI may find, when it comes to policy design for the manufacturing sector, that it has the responsibility without the authority to deliver effectively, but remains accountable for sectoral performance. In the present circumstances, it seems necessary to review the effective roles and distribution of labour and authority of these four institutions namely, the Ministry of Finance; the Ministry of Trade, Tourism and Industry; and Go Invest and the Export Promotion Council with a view to making them, together, more efficient and effective. The recent unification of Go Invest and the Export Promotion Council, together with their transfer to the Office of the President does not inspire confidence.

17.II.5.2 The other category of governmental agency is the quality assurance bodies. These are responsible for the setting, monitoring and enforcing of standards and quality principally, but not exclusively, in the manufacturing sector. They include the Food and Drugs Department, the National Bureau of Standards and

the Public Health Office of the Municipality, among others. There do not appear to be any inter-linkages among these bodies, and they do not function in the context of a clear Government sectoral policy.

Consumer Entities

17.II.5.3 At the second level, there are the Guyana Consumers Association (GCA) and the Consumers Advisory Bureau (CAB). They are institutionally weak and lack adequate financial support. They attempt, as best they can, to represent public interests in respect to manufactured products among others. The facts that they have no statutory base and their relationship with the Consumer Affairs Division of MOTTI is ill defined, hinder their effectiveness. Despite the similarity in function, there is no interlinking between them.

Private Sector Bodies

17.II.5.4 At the third level, namely that of corporate, private sector interests, institutions have multiplied over the years with the development of the manufacturing sector. There now exist Chambers of Commerce in Demerara, Berbice and Essequibo; the Guyana Manufacturers Association; and the Consultative Association of Guyanese Industry. In 1992, the umbrella Private Sector Commission (PSC) was created apparently to overcome the problems of fragmentation.

17.II.5.5 The PSC would also need to integrate the interests of the other class of private sector organisations with a strong interest in the manufacturing sector as regards policy matters at the level of the various Governmental agencies. These include the Guyana Forest Products Association and the Guyana Gold and Diamond Miners Association.

17.II.5.6 A process of continuous consultations institutionalised between these three levels of agencies should be put in place at the earliest opportunity in order to improve on the design and execution of an all-embracing policy for the manufacturing sector. Partisan consultations and the persistence of organisational conflicts will certainly work against a full and beneficial involvement of the private sector in the process of accelerated development of the manufacturing sector of Guyana.

17.II.6 Physical Infrastructure

Telecommunications

17.II.6.1 Although privatisation has resulted in some improvement in the provision of telecommunication services, there are still important deficiencies. Telephone services are now supplied on a reasonably reliable basis on the coastland and, coupled with transmitting and related systems for hinterland communication, along with the recent introduction of cellular telephones and beeping systems, a network of telecommunication services is in place which is helpful to manufacturers and, indeed, to the entire country. However, the telephone lines network has not yet been extended to a desired level, and their basic inefficiencies somewhat hamper the process of development in the manufacturing sector.

Energy

17.II.6.2 The state-owned Guyana Electricity Corporation has been recently privatised, and is now the Guyana Power and Light Company. It is projected that its costs will rise at least in the short-term. When it is recalled that the costs under the GEC were so high that they contributed to the uncompetitiveness of the manufacturing sector, this projection of even higher charges seems frightening. However, it is hoped that in the medium and long terms costs will be significantly reduced and that, in addition, the costs now incurred because manufacturers are now forced to install power-generating sets of their own, will be eliminated. It is also fervently wished that the reliability of power supplies would be much enhanced.

Transportation

17.II.6.3 Improvements are being made with respect to road and air transportation, especially to the hinterland areas, which should significantly reduce costs to sector. In addition, water transport has benefited from the rehabilitation and refurbishing of existing ships, etc., thereby making available a more dependable water transport system. When the reforms put forward in the Chapter on Transport take effect, Guyana's competitiveness in manufacturing will be considerably enhanced. However, there needs to be a resumption in the transport of bulk-cargo. Moreover, limitations on private air carriers need to be reviewed.

17.II.6.4 Manufacturers themselves need to enter into discussions with the ocean freight lines servicing the country on improved rates to North America and Western European destinations.

Water

17.II.6.5 Water supply has been a major deficiency but a programme is in place for its improvement. This will much enhance the sector's competitiveness.

17.II.7 Social Infrastructure

Basic Education

17.II.7.1 The development of a viable manufacturing sector depends critically on a literate and numerate work force. Such a workforce does not generally exist in Guyana, today. The strategies for returning the country to the standards of literacy and numeracy, for which it was once proud, have been outlined in the Chapter on Education.

Technical and Vocational Training

17.II.7.2 The network of technical and vocational institutions providing training in the array of skills and techniques essential to the efficiency of the operations of the manufacturing and agro-processing sectors is in disarray. All are in dire need of improvements of physical facilities; revision of their curricula, and the introduction of relevant programmes, in keeping with the dynamics of the market place. Above all, a system of management is required which links these institutions with the workplace of the manufacturers.

Tertiary Education

17.II.7.3 The private sector on the whole feels that graduates coming out of the University of Guyana into technical and managerial positions find it difficult to function effectively in the work place. In general there are communication problems; questions about the relevance of the imparted technical and managerial expertise, concerns about leadership quality, and an apparent lack of independence and drive on the part of the graduates.

17.II.8 Labour

17.II.8.1 There are significant imperfections in the labour markets. The framework which the labour legislation currently provides is derived from the period of import substitution industrialisation. It needs to be modified to balance better the interest of the two key social partners, with a neutral public authority. Further, as the structure of ownership in the sector shifts over time from the family-owned to the shareholding type firms, industrial relations stability should improve. But it would certainly help for other shareholding firms to review the experience of Banks DIH to see what lessons could be learnt and to put them into practice. Harmony in the sector is a key factor in the competitive market place. Considerations in respect of employee

shareholding ownership plans could help the process.

17.II.9 Livestock and the Agro-processing Sector

17.II.9.1 The livestock and dairy subsector faces a number of shared constraints to expansion. The first pertains to stockfeed. While rice bran, copra meal and molasses are available, the element of seasonality occasionally generates a mismatch between supply and demand, and thus artificially forces up the price. The key component of stockfeed is protein which is imported as concentrates. It is costly and proper formulae for blending imported inputs with local materials are yet to be worked out.

17.II.9.2 The second constraint is abattoir facilities. The abattoirs under municipal ownership and management are neither sanitary nor functional. The private sector has demonstrated that it can efficiently run such facilities. Both Bounty Farms Limited and C and F Meat Centre have their own modern abattoir facilities which are most efficient.

17.II.9.3 Third, backward integration of the livestock sector is generally insufficient. Yet, as the cases of BFL and CFMC have shown, backward integration contributes significantly to value added. The scope for further processing of livestock products is considerable. While ham, bacon, and sausages are being processed, their quality and variety could be enhanced, and new products, such as dehydrated meats for soup mixes and other manufactured food preparations, introduced.

17.II.9.4 The agro-processing industries can be aided enormously if greater effort is made towards large scale orchard production for crops. Far too often, there is inconsistency in both the quantity and quality of the fruits produced.

17.III SECTORAL OBJECTIVES

17.III.1 The principal national objective for the manufacturing sector is that it increase its contribution to the economy's overall development. There are three aspects to this broad objective: first, the strategies should seek to promote a rapid increase of production and employment in the manufacturing sector; second, they should stimulate a judicious degree of diversification, in keeping with Guyana's current and potential comparative advantages; and third, they should lead the wider utilisation of relevant and adaptable modern technology.

17.III.2 Put in another way, the overall roles of the manufacturing sector are to enhance the vertical integration of principal resource-based sectors and to produce a constantly more diverse and widening stream of goods. This means not only expanding outputs such as millwork, furniture, doors and mouldings, veneer, etc., and industrial diamonds, processed gold, polished semi-precious stones and jewellery, it also means reviving former traditions in sectors such as metal working and textiles, building vigorously on the rich base of non-traditional agriculture to produce a variety of processed foods, and introducing over time the manufacture of entirely new products.

17.III.3 Meeting these challenges will be crucial to Guyana's moving to a higher stage of development in the first decade of the next century. The obstacles in the path are formidable, but the potential is there to be reaped, for the benefit of all citizens.

17.III.4 The operational sub-objectives set out for the private sector as a whole in another part of this National Development Strategy are all directly relevant to achieving the broad objectives established for the manufacturing sector.

17.IV THE STRATEGY

17.IV.1 Manufacturing

Export Processing Zones

17.IV.1.1 The creation of two export processing zones, one in Demerara and the other in Berbice, is one of the foundations of this National Development Strategy as regards the promotion of the manufacturing sector. It is essential that the EPZs be located within close reach of a deepwater harbour. Accordingly, the area around the improved port facility in Berbice recommends itself for this purpose. However another will be established in Demerara, once the deep water harbour facilities are created there. This Demerara harbour EPZ appears to be essential if the increased export and import traffic, that is envisaged through the establishment of the road to Brazil, materialises. The harbour in the Berbice River will be deepened, principally by dredging the channel, until the goal of permitting ships of 60,000 dwt to pass easily is attained.

17.IV.1.2 Concomitant improvements in the unloading and warehousing facilities will be pursued in order to be competitive with other harbours in the region.

Competitiveness

17.IV.1.3 These policies are presented elsewhere in the National Development Strategy. They are of the highest importance, if the manufacturing sector is to be made able to prosper in the future. Some of the most important of the policies include labour force training, improved mechanisms for industrial relations, a more uniform and liberal tax regime, and the maintenance of a stable exchange rate over time. It is worth reiterating that, at the moment, the manufacturing sector in Guyana is at a competitive disadvantage *vis-à-vis* other countries in the region in these four policy areas, and that this disadvantage offsets a significant portion of the cost advantage which Guyana obtains from its relatively low-cost labour.

17.IV.1.4 The corporate taxes on manufacturing enterprises will be further reduced in order to widen the existing differential between the manufacturing and commercial sectors, thus encouraging more investment in manufacturing.

17.IV.1.5 Fiscal incentives for value-added export products will be put in place by way of an export allowance.

17.IV.1.6 Investors will be encouraged, through a package of incentives, to locate their manufacturing enterprises in certain areas of Guyana, (for example, the Intermediate and Rupununi Savannas; and Regions 1, 2, 7, 8, 9 and 10), in order to place industries closer to the raw materials wherever possible, to attain an equitable distribution of economic activity, and to occupy our hinterland.

17.IV.1.7 Investors will be encouraged to establish townships within these areas, to facilitate the recruitment of personnel and to provide amenities to workers. These matters are discussed in the Chapters on land and housing.

17.IV.1.8 For a wide range of machinery and equipment the duty and consumption tax rates will be zero.

17.IV.1.9 The duty and consumption tax rates will also be zero on most raw materials imported by manufacturers.

17.IV.1.10 There will be accelerated allowances for capital expenditure, depending on the rate of expenditure incurred.

Institutional Aspects of the Private Sector and Business Ethics

17.IV.1.11 A Task Force will be established to focus on Smart Partnerships, a new framework for encouraging businesses. Such an initiative would encourage community members to work together. International donors may be willing to support an amplified programme of this nature.

17.IV.1.12 A Joint Action Plan will be developed by Private Sector entrepreneurs and Public Sector support agencies to formulate a structure of responsibilities based upon their institutional capabilities. The Action Plan will focus on the Effective Transformation of enterprises and will contain measures to drive value added changes into the enterprise, and increase productivity and efficiency in order to strengthen export led growth.

Regulatory Arrangements

17.IV.1.13 Regulatory mechanisms will be rationalised and intensified in order to standardise and regulate various aspects of commerce and production. These will assist in the elimination of malpractices such as importing expired items and relabelling them. Regulatory batch testing by the FADA will be institutionalised especially in food and food related products including fertilisers, pesticides, insecticides etc.

Industry and the Amerindian Community

17.IV.1.14 Too often in discussions of industrial policy little or no consideration has been given to the possible role of the hinterland communities, including the Amerindians. A more balanced regional development, wherever it makes financial sense, would have the advantage of generating more stable employment and lowering the incidence of poverty in the hinterland. Such development will be based on small-scale manufacturing and agro-processing, and specialised developments such as the proposed regional gold refineries. In this respect, without doubt the completion of the all-weather road to Lethem and the lifting of restrictions on private air services will be essential ingredients of the policy. The potential of the Rupununi, especially in vegetables and livestock products, will be integrated into the rest of the economy, as well as that of other hinterland areas that are endowed with deposits of semi-precious stones and other resources.

Policies for Selected Subsectors

17.IV.1.15 The GGMC and GGDMA will rehabilitate the lapidary operations, initially as a pilot project, to demonstrate their possible commercial viability. Gold and diamonds which are used locally, specifically for the manufacture of jewellery for the domestic market and for informal export will be supported by the following strategy: it will seek (a) to infuse design expertise and state-of-the-art technologies, into the industry, and will train craftsmen and upgrade management in order to reduce unit costs and to break into the higher value market niches and (b) transform the informal into formal exports and expand marketing opportunities.

17.IV.1.16 Again the GGMC and GGDMA will, with the existing manufacturers and distributors and other established parties, detail an operational strategy that would enable the country to capture an increasingly larger stream of the potential benefits which the raw materials in question are capable of offering by way of manufacturing activities.

17.IV.1.17 Government will divest itself of the provision of abattoir services and have them transferred to the private sector on strict performance conditions while strengthening the capacity of the municipal agencies to monitor compliance with tariffs and sanitary standards.

Some Investment Opportunities

- 17.IV.1.18 Manufacture of high quality wooden furniture in both finished and knock–down forms.
- 17.IV.1.19 Manufacture of fitted kitchen furniture.
- 17.IV.1.20 Manufacture of furniture made from lianes (nibi and kufi)
- 17.IV.1.21 Manufacture of standard sized doors, windows, panels (groove & tongue), and other household fittings.
- 17.IV.1.22 Manufacture of plywood and veneers.
- 17.IV.1.23 Manufacture of particleboard
- 17.IV.1.24 Manufacture of wooden garden furniture.
- 17.IV.1.25 Manufacture of prefabricated wooden houses.
- 17.IV.1.26 Manufacture of parquet material and floor tiles.
- 17.IV.1.27 Manufacture of an assortment of wooden items: toys, coat hangers, clothes pins, walking sticks, wooden brushes, etc.
- 17.IV.1.28 Processing, canning and bottling of agricultural produce.
- 17.IV.1.29 Manufacture of chemical products (such as fertilizers, insecticides, herbicides for agricultural production and for use in processing and preservation).
- 17.IV.1.30 Manufacturing of packaging materials and containers for transport of finished products.
- 17.IV.1.31 Manufacture of jewellery and ornaments based on gold, diamond and semi–precious stones.
- 17.IV.1.32 Manufacture of leather products and souvenirs 3.5.6 Ceramics and Non–Metallic Minerals.
- 17.IV.1.33 Manufacture of articles based on clay, kaolin and silica sand.
- 17.IV.1.34 Manufacture of garments and textiles for local and export markets (mainly U.S.A. and Canada). This sub–sector is a very dynamic one with over 80% of the companies in the industry being export oriented.
- 17.IV.1.35 Production of building materials such as stone, cement, clay blocks, tiles.
- 17.IV.1.36 Manufacture of glass.

CHAPTER 18

EDUCATION

18.I BASIC FEATURES

18.I.1 Although Guyana's educational system was considered to be one of the best in the Caribbean during the 1960s, it is probably among the weakest today. Its decline is due to a number of economic and social factors which have already been considered in this document. Suffice it to say that these factors have led to a most unsatisfactory and unacceptable state of affairs: learning rates in the schools are extremely low; a large proportion of the teaching force is unqualified and untrained; absenteeism on the part of both teachers and students is rife; and textbooks and other instructional materials are often unavailable.

18.I.2 Guyana's success in attaining universal access to primary schools in the early 1970s has been eroded, and has been replaced by rising repetition and drop out rates. Moreover, a survey of school-leavers and the adult population has revealed alarmingly high levels of functional illiteracy.

18.I.3 The educational system includes (non-compulsory) preschool, six years of primary school, four to seven years of secondary school, and between three and four years of higher academic or practical education.

18.I.4 Schooling is mandatory up to the age of fifteen years.

This means that the average student is required to complete the full primary course plus three years of secondary education. The statutory age for entering school is five years nine months, and students are usually expected to remain in the school system until age sixteen. Individuals who may have left the school system with low scores or no qualifications have an opportunity to participate in a limited number of adult education courses offered by the University of Guyana, the Institute of Distance and Continuing Education (IDCE), or the Adult Education Association, as well as by various NGOs and the private sector.

18.I.5 With the introduction of the regional system in 1980, a greater element of decentralisation occurred. As early as 1985, the ten Regional Democratic Councils were given the mandate to construct and maintain schools in their jurisdictions; allocate resources among schools; recruit and pay temporary and acting teachers; and ensure that schools operate according to regional and national objectives. The central Ministry retained responsibility for

monitoring educational indicators across the regions; ensuring that there are no significant disparities in the quality of education across regions; procuring and delivering textbooks to all schools; coordinating and administering the main primary and secondary school examinations; providing support services to the schools in Georgetown; and directing the operations of most of the institutions of higher education, including the post-secondary institutions and the Teacher Training College. The University of Guyana is autonomous in academic matters; however, most of its funds come directly from the Ministry of Finance.

18.I.6 The educational system has four basic levels: nursery, primary, secondary, and post-secondary.

In total there are 1,273 schools in Guyana; 386 at the nursery level; 426 at the primary, a similar number (426) at the secondary level, including 322 secondary departments in primary schools; 21 prevocational institutions; 1 teacher training college; and 1 university. In addition there are 7 special education and 5 private schools.

18.I.7 The number of teachers in Guyana in 1997–1998 was 9,495, of whom 2,066 were male and 7,405 were female. There exists a female dominance in the teaching staff at every level.

18.I.8 Nursery education is available to children who are 3 years 9 months by the end of the first term of the school year. Pupils spend two years in a programme designed to develop their social, intellectual and psychomotor skills through activities that are based mostly on child development rather than on subject matter disciplines.

18.I.9 The programme is delivered in discrete nursery schools and also in primary schools that carry nursery classes. Of the 1,978 nursery level teachers in the system in 1997/98 only 54 were graduates, and only 668 were trained.

18.I.10 Primary education, which is compulsory and of six years' duration, is aimed at providing basic literacy and numeracy skills. The official age of entry is 5 years 9 months by December 31 of the year of admission. Net enrolment is about 98 percent. Attendance rates have been improving, but there is still great variation among regions.

18.I.11 In the 1997 – 98 academic year there were 418 discrete primary schools and eight primary classes in the public system. There were also five privately–run primary schools. Pupil/teacher ratios range from 21:1 to 33:1. The ratio of students to trained teachers is less satisfactory, ranging from 41:1 to 186:1. There has been a steady decline in the percentage of trained teachers: while in 1985/86 trained teachers comprised 77 percent of the teaching population, by 1997/98 the percentage had dropped to about 50 percent. The shortage of trained teachers is more pronounced in the hinterland areas where over 60 percent of the teachers is untrained.

18.I.12 There are two secondary education programmes: a four–year programme which is offered in the Secondary department of Primary (All–Age) Schools and discrete Community High Schools. This programme offers a mix of academic and pre–vocational skills with a strong bias towards the pre–vocational skills, especially in the final year; and a five–year programme which is done in General Secondary Schools and prepares students to write the Caribbean Examinations Council (CXC) examination and/or the General Certificate of Education (GCE) examination ordinary level at the end of five years. This programme is more academically–oriented. Students who perform well at these examinations have an opportunity to pursue studies for the GCE Advanced Level ('A' Level) Examinations or Caribbean Advanced Proficiency Examinations (CAPE).

18.I.13 About fifty–five percent of the teachers at this level is professionally trained. This represents a ten percent reduction in the proportion of trained teachers since 1986.

18.I.14 In view of the need to improve the quality, relevance, equity and efficiency of education, preliminary work began on a Secondary School Reform Project in 1995 with funds from the World Bank. Under this project, twelve pilot schools (one Senior Secondary School, one General Secondary School, seven Community High Schools, and three All–Age schools) are being used as the testing ground for the reform.

18.I.15 Post–secondary education is provided by the University of Guyana, the Cyril Potter College of Education; technical and vocational education and training institutes; and private sector institutions.

18.I.16 The University of Guyana offers courses leading to first degrees in all Faculties, i.e., Agriculture, Arts, Education, Health Sciences, Natural Sciences, Social Sciences and Technology. Undergraduate diploma and certificate courses are also conducted in all Faculties. In addition, associate degrees are provided in the Faculty of Health Sciences. There are Graduate Diploma programmes in Education Development Studies and International Studies. Programmes leading to the Master's degree are given in Guyanese History, English, Social Sciences, Natural Sciences and Education.

18.I.17 The Teacher Training Programme at the Cyril Potter College falls into two categories: (i) in-service training for teachers already in the service; and (ii) pre-service training for individuals intending to make teaching a career.

18.I.18 A network of technical and vocational education and training institutions offers a wide range of training programmes. These institutions include: the Government Technical Institute; the New Amsterdam Technical Institute; the Linden Technical Institute; the Guyana Industrial Training Centre; the Carnegie School of Home Economics; and the Guyana School of Agriculture.

18.I.19 Other institutions including the Board of Industrial Training, the Private Aircraft Owners Association; the Guyana Sugar Company, the two government-owned bauxite companies, the Light and Power Company, and the Guyana National Engineering Corporation contribute meaningfully to education.

18.I.20 Over the last decade there has been a proliferation of private schools in computing, accountancy and business, electronics and mechanics.

18.I.21 During the last decade what can be described as a parallel system has developed alongside the formal Ministry-controlled system of education. Both because of its nature and because no serious analysis of it has yet been done, there are few, if any, quantifiable data available. An out-of-school education system has also developed in response to the perceived shortcomings of the educational system.

18.I.22 Many Non-Governmental Organisations (NGOs) including various churches, parent associations, community groups, and firms, are involved in education. In addition, the international donor community has long recognised the need to strengthen Guyana's educational system and provides support in numerous ways.

18.II ISSUES AND CONSTRAINTS

18.II.1 Sector-wide Issues

Financing of Education

18.II.1.1 The enviable reputation established by Guyana in the 1960s as having one of the best educational systems in the Caribbean was based on a combination of factors, among which were a system of private and public schools and the payment of tuition fees. However, fees were abolished in 1976 for all levels of education, when all schools were brought under State control. Perhaps not surprisingly, the Government soon found it difficult to meet growing public expectations for full access to education of a high quality. Moreover, this inability to maintain standards was exacerbated by the oil crises which occurred soon after, and the consequential further decline of the economy. Declining financial allocations from the State since then have adversely affected both the quality of education in Guyana, and citizens' access to it.

18.II.1.2 In the period 1989 to 1992 Guyana's expenditure on education was only 5.5 percent of its total revenue. This compared unfavourably with almost all the countries in the world. By 1998 the rate had improved to 12.9 percent. It was still, however, far short of norms for the hemisphere and the world. Two of the most grievous consequences of this allocation level are low teachers' salaries and a shortage of funds to improve physical plant and to supply materials.

Balance Between Different Levels of Education

18.II.1.3 It is generally acknowledged that the returns to a nation are greatest from investments in primary education. Yet available data demonstrate that in Guyana the level of public expenditure at the primary level is still relatively low. **There is a need for national commitment, as a matter of fundamental urgency to**

basic education and re-education, both in the rural and hinterland regions and in the capital city and its environs. Primary education, the platform for all future learning, where the fundamentals of the basics are learned, must be given the priority it deserves.

Inequities in Spending on and Access to Education

18.II.1.4 Recent patterns in educational spending show a distinct bias in favour of the students who are academically more advanced, many of whom come from families who might be capable of defraying part of the cost of their children's education. **This phenomenon is part of a larger syndrome in which educational expenditure does not seem to contain any element of targeting. It must be recognised that the provision of free education amounts to a fiscal subsidy, and that the targeting of such subsidies to the most needy students would enable the existing levels of funding to be more effectively utilised for raising the quality of education.**

18.II.1.5 An inequitable pattern, which is directly linked to the issue of teachers' salaries, is emerging, where families who are able to afford the cost of private tutoring increasingly take recourse to that option. Families of the lower-income strata are unable to provide this benefit, and so their children become educationally disadvantaged. The allocation of funds to all schools should be based on a more rational and equitable basis, having regard to programme, location, etc.

Gender Sensitivity

18.II.1.6 Gender imbalances are present at all levels of education in Guyana. For example, few female students specialise in the areas of science and technology, despite the fact that boys and girls are required to be involved in all subject areas up to Form 3 (Grade 9). In addition, the large drop-out rate of male students could be related to the fact that there are relatively few male role models in the profession, a situation which may be linked to low salary levels.

Administration of Education

18.II.1.7 The programmes that are implemented by the Regional Administration sometimes deviate significantly from the plans and programme of activities initially established by the Ministry of Education, in conjunction with the Regional Education Department. This is caused, in large part, by the inadequacy of the structural relationships among the Central Ministry, the Regional Education Department, and Regional Democratic Councils. As a result the educational system appears to be incapable of dealing effectively with the recent surges of capital and technical assistance inflows from bilateral and multilateral agencies. In addition, planning at the regional level currently does not always include officials serving in their respective communities.

Quality of Education

18.II.1.8 The overriding objective of the entire educational sector is to enhance the quality of education, i.e., improve the process by which children and youth learn. Attaining this objective will require an array of measures, ranging from improvements in the salaries, academic and technical qualifications and training of teachers, to curricular changes and improvements in physical plant, and to the promotion of greater community involvement in schools.

Social Infrastructure

18.II.1.9 The collapse of social infrastructure – pride in community, social values and graces, civility – has made the teaching environment more difficult.

Current Levels of Literacy

18.II.1.10 There is a literacy problem in Guyana. Indeed it is estimated that there is a 21 percent rate of absolute literacy in Guyana, and an overall functional literacy rate that is just over 50 percent. This state of affairs is due in part to weaknesses in the education system and in part to the absence of a culture of literacy in many home environments. As a result of this constraint many students graduate with low levels of literacy and have little or no opportunity of developing into functionally literate citizens.

18.II.2 Issues Specific to Levels of Education

Pre–school Child Care

18.II.2.1 The demand for day care and play school facilities in terms of formal requests has risen significantly, particularly in Georgetown, but also in other urban centres. While the problem may not be as acute in the rural areas, hard data on which to base any type of planning of facilities are difficult to acquire.

18.II.2.2 The provision of day care and play school facilities is not within the competence of the Ministry of Education. However, there is a logical link between the day care and the play school systems on one hand, and the formal schooling system on the other, particularly at the entry level of nursery education. Given this nexus, all concerned stand to gain by at least exchanging views and reaching broad agreements on the relationships between the two, in order to ease the transition from one stage to the other and to enhance the level of comfort of the new entrants into the schooling system.

Nursery Level Education

18.II.2.3 The two–year programme at the nursery level is designed to provide young children with a learning environment that will facilitate their physical, social, emotional, and intellectual development, as well as the development of basic skills and desirable attitudes to learning. However, the majority of Guyanese children speak home languages that are different from the official language of the country and, unless this fact is recognised, the literacy and language problems which characterise our school–age children at present, will continue.

18.II.2.4 Overcrowding exists, especially in Georgetown schools, due to parents' requests that children be placed in schools near to their place of work rather than home, and due to parents' perception that some nursery schools are linked to "good" primary schools.

18.II.2.5 The Government's school feeding programme, supported by the World Food Programme, is not fully accessed, particularly in areas where nutritional deficiency is more pronounced. Forty percent of the children in this category have no access to vital supplements. The percentage is as high as 60 in the riverain and hinterland areas.

Primary Level Education

18.II.2.6 The schools with successful track records are experiencing growing overcrowding, while the ones with poor records are underpopulated. This has created gross imbalances in the demand and supply of educational facilities.

18.II.2.7 Because of the pivotal role of primary education in regard to eventual access to higher education, and subsequently to the job market, access to quality primary and basic education has been identified as critical to poor families, indigenous peoples, and marginal workers. As noted above, State

funding for education has failed in the past to reflect the priority of primary education.

18.II.2.8 The wide ranging differences in the interpretation and delivery of the curriculum offered at various primary schools throughout the system is a source of much concern.

18.II.2.9 Other basic concerns at this level are the need for teachers to spend more quality time in the classroom, the need to promote more faithful attendance by pupils, the need for improved provision of instructional materials, the need to improve facilities, and the need for greater parental and community involvement in the schools.

18.II.2.10 Teachers, and especially head teachers, need professional training in administration and in managing the relationship between school and community.

Secondary Level Education

18.II.2.11 About 50 percent of the nation's eleven year olds are directed into schools which have programmes of shorter duration than the standard, and teachers who are generally under-qualified and untrained. Moreover, they often occupy derelict and badly-designed buildings and are required to learn in a depressed environment. In this respect, a strategic concern that merits review is the present structure under which a child's educational fate is virtually sealed at the end of primary school, when the examination results determine whether his or her future track will be academic or vocational. Given that there are "late bloomers" in any system, the present structure may be shunting aside potential academic talent.

18.II.2.12 A growing number of students, especially boys in the secondary department of the primary programme and the CHS, are dropping out before grade 9 (before the completion of basic education).

18.II.2.13 The secondary school curriculum and the general teaching methodology are driven by the examination process and not by an overriding concern to stimulate and encourage critical thinking and optimise assimilation of material. As a consequence, the evaluation mechanism which monitors the reliability and consistency of the teaching-learning process is deficient.

18.II.2.14 The persistent shortage of secondary school teachers has created a situation where about half of the secondary school teaching staff is employed on a part-time basis. Although salaries were recently increased, conditions of service remain uncompetitive with respect to the packages offered by the local private sector and in overseas markets. The net result is an increase in extra lessons throughout Guyana. This in turn leads to limited participation of pupils in both co- and extra-curricular activities despite sporadic attempts by the management of schools to organize and structure such activities on a regular basis.

18.II.2.15 The core curriculum, in these days of globalisation and informatics, fails to provide students with basic computer literacy and foreign language competence. The attempts to correct this are as yet too feeble.

18.II.2.16 Secondary, like primary schools, need greater parental and community involvement, rehabilitation of facilities, and better instructional materials.

Training of Teachers and Inspecting of Schools

18.II.2.17 The lack of adequate numbers of suitably qualified applicants has caused the Cyril Potter College of Education (CPCE) and the Faculty of Education to lower their entry requirements for

persons seeking to be trained as teachers. The high demand for graduates from these institutions has often permitted graduates to be recruited to teach at higher levels in the system than those for which they were trained. Two other major difficulties are the recruiting of suitably experienced lecturers to train the teachers and the inability of the current staff to properly assess the practical aspects of the training.

18.II.2.18 Inspection is done at all levels: nursery, primary and secondary, on an average of only once every three years. This is as a consequence of the shortage of staff, the non–existence of necessary amenities such as computers and the scarcity of transportation facilities.

University Education

18.II.2.19 Tertiary institutions in most parts of the world which are developed, or are successfully developing, generally enjoy a level of autonomy which frees them from political and extraneous influences that would jeopardize or impair their ability to accomplish their mission. There are clear indications that the University of Guyana does not enjoy this level of autonomy. Heavy reliance on Government funding, and the uncertainty of the level of funding have undermined the ability of the University to operate as an autonomous tertiary institution.

18.II.2.20 The University of Guyana is not performing to its full potential because of a number of factors: these include undue interference in its management, many years of inattention to the physical plant; a number of minimally qualified lecturers; a lack of basic equipment; and inadequate facilities and low salaries.

18.II.2.21 Most importantly the University has failed to keep pace with the development of technology.

18.II.2.22 Low standards of intake adversely affect the University’s performance, as some of its limited resources are being used to deliver remedial courses to bring students up to entry level requirements.

18.II.2.23 The University needs to mobilise more funds and improve its capacity for financial management. It must strive to increase its cost effectiveness.

18.II.2.24 The University’s records highlight a strong student bias to enroll in the social sciences and the arts, and to avoid technology and natural sciences. This bias may also be a reflection of the state of education at the primary and secondary levels. Given the current demand for engineers and technicians, it is critical that the enrollment in these latter areas be increased either directly at the University or indirectly in special contractual arrangements.

Technical and Vocational Education and Training (TVET)

18.II.2.25 Technical education in Guyana appears to be delivered haphazardly, and to be without a vision or a grand design. It is poorly financed and managed; the linkages between those who deliver TVET and the private sector which absorbs the graduates are tenuous; and the basic training of the students is often inadequate.

18.II.2.26 A few industries provide their own training programmes, but they are primarily for a narrow range of skills.

18.II.2.27 A survey of existing TVET institutions ought to be speedily made, and a system developed to use their combined facilities in a more rational manner. There is a dearth of female students entering the field of technical education. The reason for this state of affairs ought to be identified and rectified.

Special Needs Education

18.II.2.28 The term "special needs" is used to refer to slow learners and children with emotional and physical learning disabilities, as well as the gifted. There are very few schools in Guyana which are dedicated to children with special needs: David Rose's, Saint Barnabas, and the Sophia Special Schools. Four other schools have a classroom dedicated to children with special needs: Saint Rose's High School for the blind; South Ruimveldt Park Primary School for the hearing impaired; Diamond Primary School for multiple disabilities; and the New Amsterdam Primary School also for the blind. These facilities are meant to respond to all levels of children with disabilities. None is adequately staffed and equipped.

18.II.2.29 Considering the limited available resources, it could be presumed that most special needs children are either in regular schools or at home, and that their special educational needs are left unmet.

Adult Literacy Programmes

18.II.2.30 Many adults in Guyana are illiterate, or at least not functionally literate. However, there has not been enough emphasis on adult literacy campaigns.

18.II.3 Constraints

General Constraints

18.II.3.1 In spite of an upward trend in recent years, budgetary allocations to education are still far from adequate.

18.II.3.2 Teachers' salaries are in general too low to attract and retain the most qualified staff.

18.II.3.3 There is an insufficiency of instructional equipment and material.

18.II.3.4 Physical conditions have deteriorated.

18.II.3.5 The levels of training for many teachers are inadequate, especially in the hinterland regions.

18.II.3.6 Many teachers are not academically qualified for the levels or subjects they teach.

18.II.3.7 The relative lack of amenities in many hinterland areas makes it more difficult to recruit teachers for those areas.

18.II.3.8 There has not been a strong tradition of involvement in the schools by parents and communities, although there has been an increasing trend in this regard. Experience worldwide has shown that such involvement tends to raise the quality of instruction, reduce student absenteeism, improve the condition of physical plant, and assist in identifying supplementary sources of financing for schools.

18.II.3.9 Men are underrepresented in the teaching profession; hence there is a relative lack of role models for boys.

18.II.3.10 Constraints Specific to Levels of Schooling and Functions

18.II.3.11 In addition to these general constraints, there are several additional constraints which are specific to each level. They are as follows:

a. In the *administration* of education:

- Shortage of skilled manpower
- Poor conditions of service
- Inadequate central and regional interface
- Poor communication facilities
- Inadequate data to monitor budgets, enrolment, and school and teacher performance
- Poor regional department/school interface

b. In *Nursery Level* education:

- There is persistent failure on the part of some teachers and many parents to present the curriculum in a subject-centred mode.
- The lack of data on the demand for nursery schools, by region, is a major constraint to the planning and development of additional facilities.

c. In *Primary* Education:

- Many teachers have no curriculum guide to follow, while others only have limited access to these basic support documents.
- **The curriculum is dominated by the drive to prepare the students for the SSEE.**
- In many instances, educational programmes are not articulated to facilitate smooth transitions from one level to the other.
- Not enough teaching is being done in most classrooms due to lack of discipline and frequent absences by teachers, while some teachers are overloaded with non-teaching work.
- **Funding at this level is exceptionally low, well below that of other Caribbean countries on a per-pupil basis.**

d. In *Secondary* Education:

- Absence of instructional supervision for teaching staff and relatively poor quality in the administration of the system.
- Inadequacy of structural and regular staff development programmes for both teaching staff and regional supervisory officers.
- **Poor physical conditions of many schools. A persistent shortage of equipment (science, audiovisual, technical, and sports), textbooks, library books, and teaching aids, especially in the CHS and the secondary departments of primary schools.**

- **The funding of CXC examinations and President’s College places a heavy burden on general education funds.**

e. In *teacher training*:

- Unacceptable standards in the quantity and quality of staff.
- Shortage of full–time staff at CPCE and at the in–service centres.
- Poor conditions of service (including salaries) for teacher educators, and a shortage of trained teacher educators.
- **Inadequate focus on the impact of sensitive issues on the development of children.**
- Lack of effective coordination of effort among CPCE, NCERD, the Education Faculty of the University of Guyana, and IDCE in the preparation of teachers for the educational system.
- Absence of continuous evaluation of teacher training programmes.

f. At the *University of Guyana*:

- **Student–teacher ratios that are very low in some faculties, raising the unit costs of instruction.**
- **Inadequate qualifications and experience of a not insignificant number of teachers.**
- Unattractive salaries. Many lecturers are forced to pursue outside opportunities at the expense of their students, and relevant research.
- Weak capacity in financial management in the University’s administration.
- A decline in the quality of the first–year students entering the University over the last decade.

g. In *technical, vocational education and training*:

- **Insufficient volume of TVET in relation to the growing needs of industry and commerce.**
- TVET curricula are not fully attuned to the requirements of employers.
- **Lack of mechanisms for wider private sector participation in funding the costs of TVET and in sharing in the education and training process.**
- Absence of continuous evaluation of TVET programmes.

h. In *special needs education*:

- Adequate provisions not being made in the existing schooling system for children with special needs.
- Insufficient data on the total numbers, geographic distribution, school levels, and classification of special needs children.
- Functionally illiterate out of school youth and adults not being adequately catered for.

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- No coordination of efforts to provide a second chance for the large numbers of school youth and adults for whom functional illiteracy constitutes a special handicap.
- No coherence in programming that would lead to a national certificate of literacy. It is therefore difficult for these individuals to re-enter the learning stream.

18.III SECTORAL OBJECTIVES

18.III.1 The three fundamental, all-embracing, objectives of the nation's educational system are:

1. raising levels of literacy and numeracy in the population;
2. improving the population's command of life skills; and
3. meeting the special educational needs of children who are physically or mentally challenged in one way or another.

18.III.2 To facilitate the achievement of these basic objectives in the context of the current issues and constraints affecting the educational system, the following broad operational 'objectives will be pursued.

- i. Increasing the relative importance accorded to primary education within the system.
- ii. Undertaking a remedial or recuperative campaign at the level of adult education, for all school leavers and other adults who have not attained sufficient levels of literacy.
- iii. Increasing student attendance.
- iv. Increasing the effectiveness of instruction at all levels in the system, per unit of resources expended.
- v. Mobilising greater amounts of financial resources for all levels and types of education.
- vi. Targeting the expenditures on basic education more effectively.
- vii. Maximising the results throughout the education system, from Kindergarten to University.
- viii. Increasing public awareness of the value of education and functional literacy.
- ix. Making the system more flexible in order to accommodate students who mature academically at different rates.
- x. Reducing regional inequalities in education.**
- xi. Increasing the gender sensitivity of the system at all levels with regard to specific issues affecting both male and female students.**
- xii. Focussing more on scientific and technical education, computer literacy, and informatics.**

18.IV THE STRATEGY

Financing of Education

18.IV.1 The share of the national budget allocated to education will be raised continuously from the present level of approximately 14 percent to 20 percent by 2005, and will be sustained at or above that level for the rest of the decade.

18.IV.2 All current administrative and legal barriers to the establishment of private schools will be removed.

18.IV.3 Private schools will be required to comply with Ministry guidelines on curricula, teacher qualifications and safety standards of physical facilities. However, maximum freedom will be given to those schools in respect of staff management and promotion, the kinds of educational materials used, and other areas of operational decisions. Indeed, innovation will be encouraged in school administration. By permitting private schools to emerge and absorb part of the student population in a self-financing way, the resources available to the public system will yield higher levels of support per student.

18.IV.4 Mechanisms for improving consultative processes with communities and target groups on cost-sharing activities, on the development of school financial plans and related topics, and for the involvement of community watchdog groups in the monitoring of the use of physical facilities to reduce repair costs will be expanded and made more systematic.

18.IV.5 Selected school administrative services, such as transport, catering, etc. that could be more competitively delivered commercially, will be contracted out.

18.IV.6 A modest basic fee that would contribute to books and materials, and school security and first aid services, will be established for primary and secondary schools. Mechanisms for parent involvement and consultations will, at the same time, be put in place. It must be recognised that, at present, most parents do pay for their children's education, through the purchase of materials that are not readily available and through extra-curricular lessons to compensate for the existing deficiencies of the system. This demonstrated willingness to pay needs to be channelled in directions that would help to strengthen the system. Every effort will be made to enhance partnerships between parents and schools. Mechanisms will be put in place to identify those families that should be exempted from paying fees.

18.IV.7 Examination subsidies for CXC and GCE, except for the poorest families, will be reduced significantly. The payment of even these reduced subsidies will be based on satisfactory performance by students at the national fourth form test.

18.IV.8 The restructuring of administration, enrolment and expenditure at President's College, which has already begun, will be continued. Attempts will be made to maintain standards and the capacity to deliver quality education. Other residential schools will be improved to bring them more in line with President's College.

18.IV.9 Aspects of the Secondary School Reform Project (SSRP) and the Primary Education Improvement Programme (PEIP) support the involvement of parents and other members of the community in the development of school improvement plans. Partnerships will be expanded and schools will be allowed to raise, by these and other mechanisms, supplementary funding without prejudicing their regular allotment from the Ministry of Education. In this way, schools will be given additional incentives to strengthen community alliances. The supplementary funding mobilised in this way will be used for purchasing additional equipment and materials, establishing programmes of teacher incentives, providing additional financial resources to special education, and establishing bursaries for students of low-income families.

18.IV.10 Modest charges for the after-school care of young children will be made. Care of this kind can become an activity that more than pays for itself, thus contributing to funding the central educational mission of the schools.

18.IV.11 The hiring–out of premises will be done during periods when they are not utilised for schooling.

Targeting Educational Expenditure

18.IV.12 The financing strategies which have just been outlined will also enable the better targeting of educational expenditure on needy students, so that in the end the subsidies implicit in this expenditure would go to those who most require them.

18.IV.13 The variations in the amount of spending per student between regions with similar characteristics will be reduced.

Balance between Different Levels of Education

18.IV.14 Notwithstanding the emphasis that needs to be placed on primary education because of its fundamental place in the acquisition of basic education, it is also essential to realize the interdependence that necessarily exists among the various levels of the educational system. One level feeds the other both up and down the system. Today's unqualified or under–qualified teachers are the products of yesterday's classrooms. The nation cannot wait ten years to see improvement in the functional literacy levels of today's six–year–olds, while at the same time seeing its stock of functionally illiterate out–of–school youth and adults increase. **To break the cycle, emphasis will be placed on securing appropriate literacy and numeracy skills throughout the system. There will be an attack on illiteracy from multiple points. This will include the testing for literacy levels and the building in of remedial programmes well in advance of CXC examinations. This will be the premier priority for the first decade of the 21st century.**

18.IV.15 Candidates for entry to UG and CPCE will be required to write admission tests in English Language, Mathematics and Social Studies with difficulty levels which are at least on par with an upgraded fifth form level; or successfully complete a remedial programme as a requirement for entry.

18.IV.16 To facilitate improved standards, students who enter these institutions will be required to demonstrate the ability to write cohesive prose compositions that are devoid of spelling and grammatical errors.

Gender Sensitivity

18.IV.17 Specific material on sensitivity with respect to gender will be included in the curricula for teacher training. In these courses, trainee teachers will be exposed to gender–free teaching skills and techniques.

18.IV.18 A special commission will review the curricula of the system, and its teaching and learning materials, with respect to gender considerations, and appropriate revisions will be made.

18.IV.19 Monitoring tools and mechanisms will be developed by the Ministry of Education for following the treatment of gender issues in the school system, and for providing corresponding feedback to school administrators and teachers.

18.IV.20 Special bursaries will be established to encourage girls to go into scientific and technical vocational fields and also to encourage boys to complete high school. Increased attention will be given to providing encouragement to males to stay in school and to develop intellectually. Positive role models will be used to help them discover the value of education.

Administration of Education

18.IV.21 Improved baseline data, along with their computerisation, and systematic budgetary monitoring procedures will be developed and implemented.

18.IV.22 The relationships between and among the Central Ministry, the Regional Education Departments and the Regional Democratic Councils will be redefined and clarified and their respective coordination mechanisms strengthened.

18.IV.23 Training programmes for school administrators, central educational authorities and regional officials will be strengthened and applied more broadly. Special orientation and training programmes will be instituted for newly appointed regional officials.

18.IV.24 Mechanisms will be developed to involve community members more fully in the annual planning exercise for each school and in the implementation of such plans. Particular emphasis will be given to involving the families of children with special needs.

18.IV.25 Similarly, mechanisms will be developed for the involvement of representatives of local communities and regions in overall education planning and delivery, including issues related to the curriculum.

18.IV.26 Policies Specific to Levels of Education

Pre-School Care

18.IV.26.1 Training will be provided to day care and playgroup instructors.

18.IV.26.2 A survey will be conducted in order to develop a greater understanding of the demand for day care and play school facilities.

18.IV.26.3 Partly as a function of the results of this survey, a programme will be launched to upgrade existing facilities and build new ones. Regular meetings will be set up between concerned agencies and representative parents and teachers, in order to arrive at a common understanding of the basic elements of a "curriculum" for day care and play groups.

18.IV.26.4 A campaign will be carried out to establish strategic alliances with the business sector, NGOs and community-based organisations to provide enhanced child care facilities within nursery schools in general, and in particular in the main urban centres.

Nursery Level Education

18.IV.26.5 The new curriculum, which has been formulated, will be continually monitored to:

- help students deal better with sensitive issues such as gender biases and discrimination by race, religion or social status, and to minimize the emergence of such attitudes as the children mature;
- facilitate the children's transition from the use of their dialect or home language to standard English;
- assist children to validate themselves personally in the context of the society, i.e., develop respect for the achievements of their ancestors and a sense of pride in their own person, interests and talents; and

- encourage children's sense of curiosity and willingness to explore their world on a conceptual plane.

18.IV.26.6 Campaigns will be undertaken to increase the enrolment in nursery schools by at least 15 percent over the next five years, with particular emphasis on the hinterland and deep riverain areas. By 2010, nursery education will be available to all children in the relevant age cohort.

18.IV.26.7 Expanded training activities will be provided for teachers to improve their capabilities. The quantitative goal of the expanded training programme will be to increase the number of trained teachers at this level by at least 20 percent annually.

18.IV.26.8 The number of facilities specifically built for purposes of nursery schooling will be increased. Through the PTAs, the private sector will be encouraged to help in providing more of these facilities.

18.IV.26.9 Teachers at this level will also be trained to teach English as a second language.

18.IV.26.10 Informational material and short courses will be developed for community groups, NGOs, and parents who wish to participate in the delivery of early childhood education. This will expand initiatives already started by the Community Based Rehabilitation (CBR) programme and the MOE

Parent Education programme.

18.IV.26.11 Provision will be made for the nursery schools to offer supervision for children who cannot be picked up immediately at the end of the session. Fees commensurate with the effort will be charged for providing this service, or alternatively parent volunteers will be recruited.

18.IV.26.12 Guidelines and documentation will be available to communities that wish to start their own nursery schools.

Primary Level Education

18.IV.26.13 The percentage of primary teachers who are professionally trained will be increased annually, so that the proportion of trained teachers, by the year 2010, will be at least 80 percent. Distance learning methods for in-service training will be utilised as well as the regular programme of the CPCE. Care will be taken to ensure that training programmes are conducted in such a way as not to have a disruptive effect on students.

18.IV.26.14 A programme for raising salaries with the additional budgetary allocations will be developed, giving special consideration to hinterland areas and introducing mechanisms for the effective implementation of performance-based incentives (merit increments) for all teachers. Performance-based incentives, including financial assistance, will also be given for the attainment of appropriate relevant and additional academic and professional qualifications.

18.IV.26.15 Except where there is a major learning difficulty, the focus at the primary level will be on improved literacy, numeracy and communication skills.

18.IV.26.16 Curricula relevant to the lives of students and to challenges of current and evolving trends will be developed. The curriculum will therefore include introduction to a foreign language and computers and the development of life skills or problem-solving abilities. Values, moral underpinnings and factual material for good citizenship will also be stressed. A panel of experts will be convened for the purpose of revising the curriculum.

18.IV.26.17 Student performance norms, according to grade, level and subject, will be established.

18.IV.26.18 There will be a review of current assessment practices, supported by a system of improved record-keeping in schools to institutionalise continuous assessment.

18.IV.26.19 This system of continuous assessment will be put in place with a view to effecting a smoother transition from Primary to Secondary Level. Such assessments will be supported by the use of cumulative record cards, which are currently being developed. A national committee will be convened to evaluate the SSEE with the aforementioned performance norms and continuous assessments.

18.IV.26.20 There will be more than one entry point into the academic stream. Eliminating the SSEE will not alleviate the problems associated with the lack of sufficient places in good schools and the lack of qualified teachers.

18.IV.26.21 Primary teaching guides will be made available to all teachers in the system at this level. The guides will also be provided to all supervisory staff, in order to improve the capacity of the inspectorate and regional supervisory staff to monitor the implementation of the curriculum.

18.IV.26.22 Assistance from external donors and local NGOs will be utilized to strengthen school-feeding programmes so that virtually all primary schools will be covered.

18.IV.26.23 The programmes of rehabilitation and construction of schools will continue. Assistance for this activity and for the design of purpose-built structures for different levels of enrolment will be sought from donor agencies. Special attention will be paid to schools in poverty-stricken areas.

18.IV.26.24 The location of new schools and the rationalisation of existing schools will be informed by data gathered in a recently completed School Mapping Exercise and by norms established in the new Education Act and Regulations. The School Mapping database will be updated each year by information gathered from the returns of the annual statistical questionnaires, which are sent out to all schools.

18.IV.26.25 Alliances with programmes such as SIMAP, BNTF and others, for activities such as the repair of schools, provision of furniture, creation of libraries, and supply of developmental materials, will be maintained and strengthened. PTAs will be actively involved in the coordination of outside support for the schools.

18.IV.26.26 The libraries established under the PEIP will be maintained. PTAs will be encouraged to undertake the establishment of school and community libraries in cooperation with head teachers, teaching staff and students.

18.IV.26.27 Depending on the outcome of the current project, additional schools with past achievement rates that are below average will be converted into magnet schools through an intensive and coordinated programme of renovation of physical plant, introduction of additional teaching materials, and provision of intensive in-service training to the teaching staff.

18.IV.26.28 Ancillary staff will be reintroduced into schools with more than 500 pupils.

18.IV.26.29 The testing of strategies for facilitating the transition between nursery and primary and between primary and secondary, which has been started with assistance from UNICEF, will continue. By the end of the decade, there will be well-researched and documented strategies for improving the transitions among these levels.

Secondary Level Education

18.IV.26.30 Community high school programmes will be extended by one year. The first year will be utilised for repeat and remedial work in language, mathematics and science, as a first step to the unification of GSS, CHS and the secondary departments of the primary schools.

18.IV.26.31 The relevance of the curriculum will be improved by incorporating Spanish and more intensive work with computers, and by devoting more attention to technical and vocational subjects and general life– skills.

18.IV.26.32 A more structured system of supervised teaching in the secondary schools, especially from Form One to Form Three, where the learning of basic concepts is crucial to increasing students' capacity to understand and apply analytical tools at subsequent levels in the educational system and later in the world of work, will be enforced.

18.IV.26.33 Guidelines for teachers to help students develop cognitive learning skills will be prepared and distributed. Teachers will be encouraged to foster analytical skills, critical thinking and advanced application skills and to set questions that test all levels of the cognitive domain.

18.IV.26.34 A more equitable system for awarding CXC subsidies to students based on need, and on their performance and demonstrated ability, will be established.

18.IV.26.35 A programme for implementing measures to increase the cost–effectiveness of all residential schools will be implemented: the pupil–teacher ratio will therefore be increased, but not to exceed the national recommendation for secondary schools which will be outlined in the new Education Act; greater accommodation will be made for students from the hinterland; and the administrative staff will be rationalised.

18.IV.26.36 A policy of assigning available and experienced form teachers who are able to offer advice, guidance and pastoral care to all students, and in particular to those of Forms One and Two, will be formulated and implemented. In addition, consideration will be given to engaging the services of persons qualified to give guidance and care to students and if necessary, to families.

18.IV.26.37 Efforts to ensure that the first forms have a full complement of teachers for all subject areas will be redoubled. Whenever possible, experienced teachers will be placed in the early forms as well as in the examination years.

18.IV.26.38 Years of compulsory schooling will be extended either to the age of 16 or to the completion of a five–year secondary programme.

18.IV.26.39 Certification at the secondary level will be broadened to include an examination which, by means of content and reporting, will give indication of the level of achievement of students.

A Second Chance at Basic Education

18.IV.26.40 The non–formal system of education will be strengthened. Programmes will be designed both to develop basic literacy skills and to raise the level of functional literacy and numeracy of young Guyanese adults as well as the older members of the population. This will be a part of the priority programme.

18.IV.26.41 A Guyana Council for Adult and Continuing Education will be established as a coordinating body involving all stakeholders in adult education. This body will set strategic directions, develop logical progressions, and ensure coherence and standards in the learning path for adults, including certification. It will also seek funding, and establish creative partnerships between centres for basic and functional literacy and the private sector.

18.IV.26.42 Basic and functional literacy classes for adults, as well as core secondary curricula content, will be conducted at suitable locations. Teachers and other literacy facilitators will be specially trained to teach adults.

Training of Teachers

18.IV.26.43 **Eighty percent of all teachers will be trained by 2010.**

18.IV.26.44 **The number of trained graduates will be increased by 50 percent in the same period.**

18.IV.26.45 **New training centres at the regional level and the development of modalities of distance training will be established. The establishment of an accreditation body will ensure that there is sufficient equivalency in the various teacher–training programmes.**

18.IV.26.46 **Assistance will be sought from external donors to secure access to improved technologies for teacher training.**

18.IV.26.47 **The cost–effectiveness of teacher training by distance education methodologies will be improved. However, trained teacher educator ratios in training programmes will be increased.**

18.IV.26.48 **A part of each year’s increase for education in the national budget will be allocated to improving the salaries until they are at a realistic level. Savings realised through increases in the cost–effectiveness of training programmes will also be directed in large measure to increasing salaries.**

18.IV.26.49 **A more realistic assessment of the cost of training a teacher than currently exists will be made, and this cost will be factored into contracts. In the event that teachers break their contracts, they will be required to repay on a pro–rata basis.**

18.IV.26.50 Entry requirements for teacher training programmes will be strengthened.

18.IV.26.51 Teacher training will emphasise:

- Teaching the fundamentals of literacy and numeracy.
- Teaching more analytical approaches to basic material and ways to encourage students to think creatively.
- Approaches that will enable teachers to cope with the realities of the modern classroom which include various forms of indiscipline.
- The importance of inculcating self–esteem and self–worth in students.
- **The use of modern technology including the computer.**
- Greater emphasis on teaching foreign languages.
- Techniques for teaching remedial classes.
- Critical thinking on the part of teachers themselves, with greater openness to different methods of doing things.

- Guidance and pastoral care in schools.

18.IV.26.52 Greater opportunities will be provided for training of the current stock of teachers through short courses and seminars given *in situ*, and through distance learning.

18.IV.26.53 Incentives will be provided to teachers for participating in training programmes, especially those linked to acquisition of knowledge and techniques in mathematics, sciences, technology and languages.

18.IV.26.54 A system through which highly qualified persons who have not come through the educational curriculum in their tertiary studies can acquire professional teaching competence through intensified and abbreviated courses in teacher training will be provided. In addition, provision will be made for such persons to participate in teaching on a part-time or occasional basis without having received full certification from a teacher-training programme.

18.IV.26.55 Provision will be made for licensing teachers who are trained at institutions other than CPCE and the University of Guyana.

18.IV.26.56 The relationships among CPCE, NCERD and the University of Guyana will be rationalised to emphasise greater linkages between programmes.

18.IV.26.57 A systematic evaluation of all teacher-training programmes will be undertaken every five years to establish levels, benchmarks and relationships between the various teacher-training programmes.

18.IV.26.58 In the long term all heads of schools will be academically and professionally qualified prior to their appointment. They will also receive specific training in management and administration.

18.IV.26.59 Provision will be made for the teacher educators to receive periodic refresher materials and courses.

18.IV.26.60 Guidance teachers, and vocational guidance personnel, will be trained and appointed to schools.

18.IV.26.61 Instruction in the teaching of English as a Second Language will be provided at Teachers' College and will be a requirement for certification.

18.IV.26.62 All candidates for Teachers' College will be required to pass a special college admission test in English and Mathematics.

18.IV.26.63 There will be limits as to the length of time an unqualified or under-qualified teacher, currently employed, continues to teach without improving his/her academic and professional qualifications.

18.IV.26.64 A code of conduct for teachers will be developed and implemented by the teachers' union and Ministry of Education.

18.IV.26.65 Teacher training programmes and management courses will include the presentation of racial, ethnic, religious and other sensitive issues.

Tertiary Education

18.IV.26.66 The University of Guyana Council will be appointed by a broad-based, non-partisan body which will include the government, the opposition parties, representatives of religious bodies, the private sector and the trade unions.

18.IV.26.67 A predictable, reliable level of subvention to the University will be maintained over the long term, based on a transparent and workable formula.

18.IV.26.68 The public subvention to the University will be transferred in a lump sum on an annual basis at least two months before the commencement of the academic year.

18.IV.26.69 The University will seek to have a more viable and cost-effective grouping of courses.

18.IV.26.70 The University will seek to achieve more significant efficiency in the utilisation of its existing income by improving its management, attention being paid to the number of administrative units and positions and to the ratio of ancillary to academic staff.

18.IV.26.71 Training and assistance will be provided to improve the institution's capacity for sound financial management and coordination.

18.IV.26.72 Management will act more speedily to commercialise the University's potential services in research and development. Consultancy services will be expanded.

18.IV.26.73 Fees will be maintained and will vary from programme to programme.

18.IV.26.74 The student loan scheme will be maintained.

18.IV.26.75 Greater support for the University will be mobilised, through both domestic and foreign sources, including contributions to scholarship funds.

18.IV.26.76 Rolling five-year plans will be prepared for capital and recurrent expenditures, to ensure greater predictability and probity in the use of funds.

18.IV.26.77 A University grants commission will be set up, with membership drawn in part from the University Council, to recommend medium and long term Government financial allocations.

18.IV.26.78 The University's entry requirement of five O' Levels or five CXC, inclusive of English, will be retained.

18.IV.26.79 To expand the intake of students, high school diplomas will be considered in conjunction with other requirements for entry. A scholastic aptitude test will be utilised as part of the selection process.

18.IV.26.80 The University's capacity to provide remedial teaching prior to enrolment will be strengthened.

18.IV.26.81 Scholarships will be provided to needy students.

18.IV.26.82 Adult and continuing education programmes will be strengthened.

18.IV.26.83 Triennial reviews of course offerings will be undertaken with a view to revising them in the light of the requirements of the economy, modern trends and international developments.

18.IV.26.84 In 2001, the University will develop a long term plan for establishing and strengthening centres of excellence which eventually could draw students from the Caribbean region and elsewhere. Special support from industry and international donors will be sought for research and teaching programmes (and student scholarships) in those centres. Topics that commend themselves as natural candidates for such centres include tropical forestry and forest management, geology and mining, and fisheries management.

18.IV.26.85 Forms of collaboration with the University of the West Indies and other universities will be intensified.

18.IV.26.86 The University's foreign language offerings, especially Spanish, will be improved as a priority.

18.IV.26.87 The mainstreaming of gender will be introduced in more course offerings. Faculty and administrators will be given special materials and seminars on the subject.

18.IV.26.88 The availability of cultural and sports facilities for students will be increased and support will be given to activities which will enhance the quality of the students' social life.

18.IV.26.89 The most deteriorated aspects of the physical plant will be urgently rehabilitated and systematic maintenance of all facilities will be implemented.

18.IV.26.90 A stronger University presence will be created in both Berbice and Essequibo, which may be expanded as demand and resources permit.

18.IV.26.91 The emoluments of the University teaching staff will be scrupulously scrutinised to ascertain whether its various levels enable it to recruit teachers of the highest available calibre.

18.IV.26.92 The University will establish and strictly enforce, academic and experience requirements that are comparable to those obtaining in the Caribbean, for the recommitment and promotion of its academic staff.

18.IV.26.93 A special pre–university science course will be established at the University in order to increase its intake of students for training in science and technology. Course applicants will be required to pass a special test.

Technical and Vocational Education and Training

18.IV.26.94 A tripartite council comprising representatives of the trade union movement, the private sector and government will be established.

18.IV.26.95 This council will provide guidance in financial management and will take responsibility in such areas as the certification of graduating students and the periodic evaluation of the TVET system.

18.IV.26.96 Employers will be encouraged to support TVET programmes in kind as well as in cash, by contributing employees' time and making available equipment and materials.

18.IV.26.97 The TVET system will be structured, so that it might offer more short–term courses in general for those with a basic education, craft programmes for qualified Form IV graduates, technician and diploma programmes for Form V graduates with appropriate CXC qualifications, and the opportunity for admission to programmes at the University of Guyana for outstanding graduates.

18.IV.26.98 In consultation with GUYSUCO, the facilities offered at their technical institutes will be remodelled in order to provide training to a wider cross-section of students than those now catered for at these institutions.

18.IV.26.99 Special emphasis will be given to short courses in rural areas on topics that have the potential to enhance the income of farmers.

18.IV.26.100 The increased funding available for TVET will be used to expand its scope, and to improve the quality of instruction. The expansion will take place in areas indicated by the tripartite council.

18.IV.26.101 Information technology and design and technology programmes at primary and secondary levels will be introduced.

18.IV.26.102 The geographical coverage of the TVET system will be widened and made more accessible to rural/hinterland communities.

18.IV.26.103 A programme to increase the number of female applicants in non-traditional fields will be initiated.

18.IV.26.103 The provision of entrepreneurial studies in the curricula of primary, secondary and tertiary institutions will be an important aspect of this sub-section of the education sector.

Special Needs Education

18.IV.26.104 The National Strategy for Special Needs Education will focus on putting children with special needs into the mainstream of education. Those who are severely challenged will be catered for in special institutions, to ensure an appropriate educational climate, including relevant curricula with effective instructional materials and the requisite support services and physical infrastructure; foster informed involvement of immediate families of children with special needs as well as interested communities; train teachers in the essential skills and techniques required in special needs education; develop partnerships with support groups and non-governmental organisations; and ensuring the provision of suitable challenges for the gifted.

18.IV.26.105 A programme of early and regular diagnostic testing will be instituted in the schools to identify learning difficulties and put in place timely remedial measures. In this regard, the Ministry of Health will work in close collaboration with the educational system for the early detection of special physical needs and the design of timely interventions where necessary, preferably before school age. This cooperation will also encompass the educational needs of street children, dropouts, juvenile delinquents and abused children.

18.IV.26.106 All schools will be required to articulate their multi-year and annual plans and resource requirements for satisfying children's special needs.

18.IV.26.107 The nature of examinations and assessments to which special needs students are subjected will be reviewed to make them more varied and appropriate.

18.IV.26.108 Existing special needs schools will be strengthened in all aspects to enable them to cater more effectively to their students.

18.IV.26.109 The committee on Special Needs will be resuscitated, more formally recognised, expanded in the scope of its activities, and empowered to deal more effectively with associated issues. The committee's substantive responsibility will be to develop, introduce, support, and monitor appropriate educational

programmes for those students with special needs.

Other Educational Policies

18.IV.26.110 Guyana will become a centre of learning for English as a second language, for persons from the countries of South America. A task force will be established to review possibilities in this area and formulate recommendations.

18.IV.26.112 To preserve its traditions and meet the challenge of interacting on a greater scale with the external world, programmes will be developed to promote reading and creative writing as a means of sustaining Guyanese art forms.

18.IV.26.113 Textbooks and other teaching materials will reflect the character of Guyanese society. Curricula will include ethical and moral instruction to provide the platform for discussing civic virtues, tolerance and understanding in a multi-racial society.

18.IV.26.114 The school programme will endeavour to inculcate, discipline, courtesy and orderliness in students and, through them, in the general society.

CHAPTER 19

HEALTH

19.I BASIC FEATURES OF THE SECTOR

19.I.1 Health Conditions of the Population

19.I.1.1 One of the most unfortunate consequences of Guyana's economic decline in the 1970s and 1980s was that it led to very poor health conditions for a large part of the population.

19.I.1.2 Compared to other neighbouring countries, Guyana ranks poorly in regard to basic health indicators. In 1998, life expectancy at birth was estimated at 66.0 for Guyana, 71.6 for Suriname, 72.9 for Venezuela; 73.8 for Trinidad and Tobago, 74.7 for Jamaica, and 76.5 for Barbados. In Guyana, the infant mortality rate in 1998 was 24.2, in Barbados 14.9; in Trinidad and Tobago 16.2; in Venezuela 22; in Jamaica 24.5; and in Suriname 25.1.

19.I.1.3 Maternal mortality rates in Guyana are also relatively high, being estimate at 124.6 for 1998. Comparable figures for other Caribbean countries are 50 for Barbados, 75 for Trinidad and 100 for Jamaica.

19.I.1.4 It must be emphasized, however, that although Guyana's health profile still suffers in comparison with most of the Caribbean, there has been remarkable progress between 1988 and 1998

19.I.1.5 In Guyana the leading causes of mortality for children under the age of one are: certain conditions originating in the prenatal period (46.9%); intestinal infectious diseases (15.6%); congenital anomalies (10.4%); diseases of the respiratory system (6.7%); nutritional deficiencies 5.8%); bacterial diseases (4.0%); diseases of the blood and the blood-forming organs (2.0%); endocrine and metabolic disease immunity disorders (1.8%); accidents (1.6%); and diseases of the Nervous System (1.1%).

19.I.1.6 The leading causes of mortality for all age groups are cerebrovascular diseases (11.6%); ischemic heart disease (9.9%); immunity disorders (7.1%); diseases of the respiratory system (6.8%); diseases of pulmonary circulation and other forms of heart disease (6.6%); endocrine and metabolic diseases (5.5%); diseases of other parts of the Digestive System (5.2%); violence (5.1%); certain condition originating in the prenatal period (4.3%); and hypertensive diseases (3.9%).

19.I.1.7 The picture in regard to morbidity patterns differs. The ten leading causes of morbidity for all age groups are, in decreasing order: malaria; acute respiratory infections; symptoms, signs and ill defined or unknown conditions; hypertension; accident and injuries; acute diarrhoeal disease; diabetes mellitus; worm infestation; rheumatic arthritis; and mental and nervous disorders.

19.I.1.8 This morbidity profile indicates that it can be improved substantially through enhanced preventive health care, better education on health issues, more widespread access to potable water and sanitation services, and increased access to basic health care of good quality.

19.I.1.9 Poor environmental health is in part responsible for the seriousness of vector borne diseases, including malaria, filaria and dengue fever. Malaria is endemic and represents the major cause of morbidity in Regions 1, 7, 8, which are also among the poorest areas of Guyana. Filaria is endemic along the coastal strips, and dengue fever is prevalent especially also in the coastal area. In general, diseases spread by vectors and those associated with environmental problems show the most rapid rates of increase.

19.I.1.10 The high incidence of dental caries can be addressed through preventive and conservation care, including oral education. This incidence is influenced by the lack of qualified dentists. Moreover, public interventions have been confined to emergency care, especially to extractions, the state providing little or no curative and conservation treatments.

19.I.1.11 Although cancer is becoming an increasingly serious health issue for Guyanese, there is no system of diagnosis. This, of course, impedes a sensible appreciation of the magnitude of the problem. However, the incidence of cervical cancer appears to be rising among the female population, even though its impact could be reduced by preventive actions such as early detection. Smear tests are taken in Georgetown, Linden, and New Amsterdam. Most of the women whose test was positive could have reduced the severity of their condition through earlier detection and cure. At present there is no oncologist in Guyana, and the assessment of the urgency of each cancer case is very often not accurate. A Cancer Board, which is in the process of drafting a national cancer programme, was established in September 1998.

19.I.1.12 There are significant differences in the incidence and patterns of morbidity by Region. This is due in part to the geographical isolation of some communities and the attendant difficulties of delivering equipment and services to them, and in part to the fact that the deterioration of health infrastructure mainly affected the most remote communities. The Regions with the lowest overall morbidity rates are Regions 3, 4, 6 and 10. However, the reliability and completeness of the data are not uniform across regions, and are especially poor in areas where there are no health clinics, or where clinics are poorly staffed and statistics poorly reported. Hinterland areas are often the least accessible both by river and by air, and suffer from a lack of basic infrastructure and facilities, such as electricity and potable water, which makes the delivery of certain services a difficult task.

19.I.1.13 While malaria is mainly responsible for the high rates of morbidity in the hinterland, food accessibility and availability vary across regions. Moreover, the nature of the most pressing health concerns varies by population group. An analysis of disease patterns and other socio-economic variables has revealed particular groups and areas of vulnerability, namely: 1) women's health; 2) children's health; 3) people affected by STDs/AIDS; 4) people affected by mental health problems and drug abuse; 5) disabled people; 6) elderly people; and 7) the Amerindians.

19.I.1.14 The incidence of HIV/AIDS has grown almost exponentially in recent years. Indeed, the impact of this ailment could have extremely serious and deleterious effects on the individual, on the population as a whole, on the development of the economy, and on the social stability of the nation. Indeed, it is estimated that if the present trend is not reversed, life expectancy in Guyana could be reduced to 52 years by as early as 2010, and that 50% of the AIDS cases would be concentrated in the 10 to 24 age group.

19.I.1.15 Amerindians represent one of the most vulnerable groups to health issues. Their conditions are particularly difficult in respect of malaria, acute respiratory diseases, water borne diseases, nutritional deficiencies, and access to health care.

19.I.2 Environmental Risks to Health

19.I.2.1 *Air pollution* is mainly derived from the blowing of bauxite dust and the spraying of pesticides in the canefields, however their effects have not been investigated thoroughly.

19.I.2.2 Bacteriological *contamination of water* continues to occur in the distribution system and often surface water is used without treatment or disinfecting facilities. Moreover the high concentration of soluble organic matter encourages the rapid growth of bacteria.

19.I.2.3 *Basic sanitation* is poor. Sanitary conditions are dismal in squatter areas, many of which have no hygienic means of waste disposal. New housing schemes, factories, commercial institutions and industries have been developed without complying with the existing land development laws. In fact, individual septic tanks and pit latrines are often the only means of sewage disposal and are frequently not constructed at the recommended distance from the water supply.

19.I.2.4 The current *housing stock* is inadequate. Overcrowding in buildings is therefore common. This encourages the transmission of obstructive pulmonary and other communicable diseases. Furthermore, the lack of housing has encouraged the expansion of squatting areas.

19.I.2.5 In the *work environment* several health risks are prevalent. Most injuries occur in agricultural occupations, followed by the manufacturing and mining sectors. In the agricultural sector, the main risks to health are also derived from the use of pesticides. Moreover, workers in the rice and sugar industries have been recorded as suffering from silicosis and bagassosis. Silicosis, dermatitis, hearing loss, heat stress and diseases related to the absence of proper ventilation affect workers in the mining industry.

19.I.2.6 In the *home*, domestic violence represents a major health problem in Guyana, causing physical harm and damaging mental health.

19.I.2.7 Food contamination also constitutes an important health risk. Despite Government regulations and food inspection programmes, the chemical contamination of food continues to occur. Enforcement mechanisms are weak.

19.I.3 The Health Care System

19.I.3.1 The delivery of health services is provided at five different levels in the public sector:

19.I.3.2 ***Level I: Local Health Posts (166 in total) that provide preventive and simple curative care for common diseases and attempt to promote proper health practices. Community health workers staff them.***

19.I.3.3 ***Level II: Health Centres (109 in total) that provide preventive and rehabilitative care and promotion activities. These are ideally staffed with a medical extension worker or public health nurse, along with a nursing assistant, a dental nurse and a midwife.***

19.I.3.4 ***Level III: Nineteen District Hospitals (with 473 beds) that provide basic in-patient and outpatient care (although more the latter than the former) and selected diagnostic services. They are also meant to be equipped to provide simple radiological and laboratory services, and to be capable of providing preventive and curative dental care. They are designed to serve geographical areas with populations of 10,000 or more.***

19.I.3.5 ***Level IV: Four Regional Hospitals (with 620 beds) that provide emergency services, routine surgery and obstetrical and gynaecological care, dental services, diagnostic services and specialist services in general medicine and paediatrics. They are designed to include the necessary support for this level of medical service in terms of laboratory and X-ray facilities, pharmacies and dietetic expertise. These hospitals are located in Regions 2, 3, 6 and 10.***

19.I.3.6 ***Level V: The National Referral Hospital (937 beds) in Georgetown that provides a wider range of diagnostic and specialist services, on both an in-patient and out-patient basis; the Psychiatric Hospital in Canje; and the Geriatric Hospital in Georgetown. There is also one children's rehabilitation centre.***

19.I.3.7 This system is structured so that its proper functioning depends intimately on a process of referrals. Except for serious emergencies, patients are to be seen first at the lower levels, and those with problems that cannot be treated at those levels are referred to higher levels in the system. However, in practice, many patients by-pass the lower levels.

19.I.3.8 The health sector is currently unable to offer certain sophisticated tertiary services and specialised medical services, the technology for which is unaffordable in Guyana, or for which the required medical specialists simply do not exist. Even with substantial improvements in the health sector, the need for overseas treatment for some services might remain. The Ministry of Health provides financial assistance to patients requiring such treatment, priority being given to children whose condition can be rehabilitated with significant improvements to their quality of life.

19.I.3.9 In addition to the facilities mentioned above, there are 10 hospitals belonging to the private sector and to public corporations, plus diagnostic facilities, clinics and dispensaries in those sectors. These 10 hospitals together, provide for 548 beds.

19.I.3.10 Eighteen clinics and dispensaries are owned by GUYSUCO.

19.I.3.11 The Ministry of Health and Labour is responsible for the funding of the National Referral Hospital in Georgetown, which has recently been made a public corporation managed by an independent Board. Region 6 is responsible for the management of the National Psychiatric Hospital. The Geriatric Hospital, previously administered by the Ministry of Labour, became the responsibility of the Ministry of Human Resources and Social Security in December 1997.

19.I.3.12 The facilities at the other levels receive their funding from the Ministry of Local Government. In each of the Regions there is a Regional Health Officer reporting to higher levels of the Ministry of Health on professional and technical matters. The Regional governments are responsible for health care within their boundaries, and administrative control over health resources rests with the Regional Executive Officer.

19.I.3.13 The Ministry of Health is responsible for establishing and implementing health policy and standards, accrediting facilities, and identifying the human resource requirements of the sector throughout the country. It has responsibility for the procurement and distribution of pharmaceuticals and medical supplies in all regions. It funds and manages the vertical health programmes, including vector control, rehabilitation services, dental care, mental health programmes, Hansen's disease, AIDS, and alcohol and drug abuse.

19.I.3.14 The possibilities of confusion and overlapping among these agencies are obvious. Indeed they often occur.

19.I.3.15 Recent proposals for reforming the Regional system by creating Regional Health Authorities have been advanced and approved by Cabinet. However implementation modalities have not been thoroughly discussed. Under the new system, the Ministry of Health and Labour will not be responsible for day-to-day management and service delivery, but it will have responsibility only for policy formulation, regulation, planning, standard setting, monitoring and evaluation.

19.I.3.16 The personnel in the system include 336 doctors (190 within the public sector), 1597 registered nurses, 127 Medex officers (medical extension workers who are qualified as nurses and have 18 months of clinical training), 133 community health workers, 80 pharmacists (3 public, 77 private), 24 environmental health officers, and 27 dentists. There is heavy reliance on overseas personnel in some disciplines. For example, more than 90 percent of the specialist medical staff in the public sector are expatriates. Many medical personnel in the public sector also work in the private sector, and some observers have noted a neglect of their duties in the former, in favour of the latter.

19.I.3.17 In the public health sector the staff vacancy rates range between 25 and 50 percent in most categories. Moreover, imbalances exist in terms of staff distribution: almost 70 percent of the doctors are located in Georgetown, where one-quarter of the population lives. In rural areas and in some specialisations such as pharmacy, laboratory technology, radiography and environmental health, the vacancy rates are at the higher levels.

19.I.3.18 Per capita Government spending was US\$26 in 1997, which is well above the US\$12 per capita assumed as the minimal threshold by international organisations for a basic primary health care package. However, biases occur in the allocation of resources, thus reducing the efficacy of Government expenditure, for example, the stated priority of Primary Health Care is under-funded, the major bias being towards hospital services all over the country. Indeed, in 1998, as much as 35 percent of total recurrent Government expenditures on health was allocated to the Public Hospital in Georgetown. The Regional budget for health was 25 percent.

19.I.3.19 The University of Guyana and the Liliendaal Annex of the MOH undertake almost all health-related training. UG offers curricula in medicine, pharmacy, medical technology, radiography, environmental health, health sciences tutoring, and health service management. In collaboration with the Institute of Adult Learning and Continuing Education, evening classes for health professionals are offered in mental health, developmental psychology, care of the elderly, and childcare.

19.I.3.20 The Liliendaal Annex manages a variety of clinical and technical health education programmes, including professional education for those who intend to work as Medex personnel, nurses, X-ray technicians, dental auxiliaries, laboratory aides, community health workers, physiotherapy assistants, pharmacy assistants and nursing aides. It also offers a public health nursing programme. The Health Education programme of the Ministry of Health includes two nursing schools that are attached to the public hospitals of Georgetown and New Amsterdam. The Linden Hospital Complex operates a nursing school (Charles Rose Nursing School), and internal training is provided at the St. Joseph's Mercy Hospital (private).

19.I.3.21 GUYSUCO provides diagnostic and outpatient services for their employees and their dependants, and some of them also have NIS coverage. GUYSUCO also carries out preventive activities through the annual screening of all employees, family planning, and immunisation through collaborative actions with the Ministry of Health. For example, GUYSUCO and the Ministry of Health joined their efforts for the implementation of the Yellow Fever and MMR Immunisation Campaign launched by the Ministry at the beginning of 1999. As noted, the quality of GUYSUCO's health services is generally high.

19.II ISSUES AND CONSTRAINTS

19.II.1 Twelve and one-half percent of Guyana's population does not have access to any health care. The situation is proportionally more severe for the lower-income groups. For example, among the lowest group twenty-four percent of the ill or injured does not seek medical care "due to expense or distance factors"; in the next lowest, the corresponding figure was nineteen percent; but in the highest it was only three percent.

19.II.2 The most important factors affecting the demand side of health care utilisation are the distance and travel time to a health facility, the perceived quality of the care, the education level of the patient, the type and severity of the illness and the out of pocket expenditures for health. The price of the service plays an important role, but is not the only determinant of health services demand.

19.II.3 The poor quality of the care offered at the lower levels has encouraged many patients to by-pass the referral system and seek care directly at the higher levels, thus causing the break-down of the referral system.

19.II.4 Overall, both structural and process quality is poor. In spite of recent increases in financing and improvements in management, the health sector still operates with vacancies in several key positions, and with malfunctioning and obsolescent equipment. Storage facilities for drugs are inadequate, as are quality control standards and implementation. Patients routinely purchase their own pharmaceuticals and medical supplies and are forced to spend excessively long time in repeated visits to medical facilities. Moreover, the overall quality of operations has not improved. Indeed, in some respects they continue to decline. In large part this is due to problems in the institutional structure of the sector, in its management practices, and in the unavailability of adequate financing.

19.II.5 Health services are not responsive to users, particularly those most in need, thus resulting in increased inequity. In addition, poor accountability to users undermines the responsiveness of the system.

19.II.6 Both allocative and technical inefficiencies plague the sector, particularly the public health sector. Allocative inefficiencies derive from the fact that resources are not allocated to the services that are most cost-effective. Technical inefficiencies result from an inefficient utilisation of those areas in which facilities are adequate. Unit costs of facilities at all levels are high.

19.II.7 Institutional responsibility for the public sector system of health care is dispersed among too many Ministries and agencies. Under the present system, the operational responsibility for the implementation of the Ministry of Health's policy lies with the Regional Health Officer (RHO). The RHO reports to the Regional Executive Officer (REO), who also has the financial authority and responsibility for programmes in all sectors. The REO, however, is not accountable to the policy-making Ministries. The Ministry of Health, therefore, has virtually no downstream control on the implementation of its policies. There is no mechanism to hold the REO accountable for the delivery of the sectoral programmes. The restructuring of institutional responsibilities should therefore be a key component of the institutional reforms of the public health care system.

19.II.8 Although Guyana's public expenditure on health has increased significantly during the 1990s, because the system had deteriorated resources remain below the levels necessary to restore it to the desired state. If national health priorities are to be properly addressed, adequate funding for them is vital. There is also a compelling need to improve financial management, so that the available funds are used more efficiently.

19.II.9 There is difficulty in establishing the overall resources needed in the public health sector because budgets are not based on actual cost estimates or productivity criteria.

19.II.10 There is a scarcity of qualified and experienced professionals in health care accounting and financial management.

19.II.11 Salaries in the public health care sector are still well below those that are offered in the private sector. Moreover, perhaps as a result, absenteeism of medical personnel is a major concern. Furthermore, those reforms that are intended, under the Highly Indebted Poor Countries Initiative, to upgrade salaries up to 80 per cent of private sector levels, have not yet been implemented. In addition, more flexible and efficient personnel policies are required.

19.II.12 In principle, the referral system is well-suited to Guyana because of the geographic barriers to communications and transport. However, in practice it is not functioning well. Technical inefficiencies, and the failure to provide adequately trained medical staff, supplies and equipment at the lower level induce patients to bypass the system and seek care in the National Public Hospital, or in private hospitals concentrated in the Georgetown area. In a cruel irony, it is the poor who visit in

disproportionate numbers the local facilities and endure the consequences of lower–quality care.

19.II.13 The principal administrative and managerial reasons why the referral system is not working as planned appear to be the following: the lack of sufficient administrative co–ordination between the Ministry of Health and the Regional authorities; shortages of funding; technical and allocative inefficiencies; the inability of the Ministry of Health to provide leadership to the Regions; the lack of authority in the Ministry of Health to implement policies or to set the budgets of the Regional Administrations; the lack of training in public health or in administration of Regional Health Offices; the failure continues to pass on patients’ files to higher stages of the system. Indeed the failure to keep files on them; and the fact that in some parts of some Regions, it is easier to travel to Georgetown than to the appropriate health facility in the Region.

19.II.14 The spatial distribution of health centres is critical, for they provide a wide range of preventive services and some curative care. However, those in Regions 3, 4 and 6 cater to at least twice as many people as in the other regions. And yet, a distribution of health centres based on the population to be catered for would be highly inequitable. Inefficiencies in the spatial distribution of health centres are somehow inevitable given the geographical features of the Guyanese territory and the difficulties of travelling. A trade–off between equity and efficiency seems therefore to exist in that what is an equitable spatial distribution of health centres does not necessary constitute the most efficient solution. The proposals which have been put forward in the Chapter on the Transport sector would go a long way towards the resolution of this difficulty.

19.II.15 It is widely recognised that the supply and distribution of pharmaceuticals and medical supplies is a major bottleneck in the health care system. There are periodic shortages vis–à–vis needs, delivery is often not timely, and wastage frequently occurs because of poor management. There is obviously a need to correlate estimates of annual drug requirements, procurement, distribution and the allocation of adequate financing. It is also necessary to provide adequate storage facilities, and effective security to prevent the leakage of drugs and other supplies to the private market. An increase of salaries might reduce this transfer of assets from the public to the private sector.

19.II.16 There is an absence of standard treatment protocols for drug use in treatment of common diseases.

19.II.17 There is a gross insufficiency of qualified pharmacists within the public system.

19.II.18 Storage facilities are inadequate and in many cases not suitable to the storage of drugs both at central and regional levels. In addition, part of the space that is available is taken up by expired drugs, drugs that should be destroyed because of their poor condition, and by unused medical equipment.

19.II.19 There is no comprehensive management information system for pharmaceuticals and other supplies in use at the Pharmacy Bond.

19.II.20 Planning is inadequate. In the Regions, planning for health services is often the responsibility of managers with no expertise in the health sector. Strategic plans for health services development in the Regions are not produced regularly and the planning of outreach activities is minimal. Decision–making is rarely based on supporting evidence. On the contrary, decisions are often made as a crisis response rather than as a result of a rational planning process. There are no mechanisms through which data on the health status of the population and the incidence of particular diseases and syndromes can be channelled into the decision–making process.

19.II.21 The unavailability of qualified personnel is one of the major weaknesses of the public health system. Moreover, the available staff is not optimally distributed. Major problems occur especially in certain key areas, such as pharmacy, laboratory technology, radiography and environmental health. In addition, the shortage of nurses, who form by far the largest percentage of the work force and are the backbone of the health sector, severely hampers the ability of the system to deliver quality care. There is also a dearth of medical specialist staff and other technical health professionals. As a result, the ratio of physicians and nurses to population is still unacceptably low in some Regions, especially in Regions 1, 5, 8, 9 and 10.

19.II.22 The management of the system is poor and most personnel in key positions lack managerial training and planning expertise. Difficulties are experienced in the recruitment, retention, training, deployment and utilisation of staff. The development and management of human resources is still not approached in a systematic and organised fashion. The major factors contributing to the public health sector's inability to attract, recruit and retain staff within the public health system are as follows: low incentives (salaries and employment benefits), unappealing working conditions, the lack of career development systems; limited opportunities for in-service training, a general shortage of adequately trained teaching staff and teaching-related materials, and the absence of a comprehensive human resources development and management plan.

19.II.23 **The shortage of physicians is not necessarily a shortage in numbers. Rather, the problem is one of poor distribution since most physicians prefer to practise in Georgetown and surrounding areas. However there is a definite shortage of specialist physicians. Nursing shortages include both a dearth in absolute numbers and a lack of specialist such as anaesthetic, psychiatric and paediatric nurses. Services in health-related fields such as medical technologists, pharmacists and radiographers are most critical.**

19.II.24 **The lack of adequately designed rewarding systems for health care workers serving the interior mostly account for the inability to attract personnel to these areas. Hinterland conditions are poor, infrastructure and educational facilities for families inadequate, and the cost of living is generally higher than in Georgetown. Better incentives will need to be designed.**

19.II.25 Health education and training systems for all types of health workers are inadequate and not always efficient. There is an absolute shortage of personnel in certain positions, which could be addressed through the enhancement of training activities. But there is an all-pervading absence of suitably trained educators and trainers.

19.II.26 Distance learning, which could amplify the coverage of programmes and of in-service training, has not been developed thoroughly. In the past, distance education was used for the continuous on-the-job training of medexes serving the interior, through weekly radio communication. The process was, however, discontinued because of the disrepair and poor maintenance of the radio equipment. Distance education would not only increase incentives for people to stay in the interior, but also would assist to retrain and upgrade staff's skills. New health learning materials also need to be developed.

19.II.2 Buildings and Equipment

19.II.2.1 Guyana's health infrastructure is very old and many buildings are in need of repair. The condition of the equipment is also poor because of its age and the lack of maintenance. The utilisation rate of the public facilities, especially at Health Centres and Health Posts, is very low. This is due mainly to the shortage of supplies, equipment, and health personnel; to the high hidden costs for the users (lengthy transportation, and waiting time); and to the relative inaccessibility of the Centres and Posts

19.II.2.2 The successful implementation of vertical programmes such as vector control, sexually transmitted diseases and HIV/AIDS, Hansen's disease, tuberculosis, dental services and veterinary public health is severely hampered in Guyana because of the institutional factors related to the existing Regional system. In addition the programmes are constrained by over-stretched staff at the central level; insufficient support and field staff; inadequate inter-institutional co-ordination in programmes such as malaria control; and inadequate supplies of reagents, drugs and equipment.

19.III SECTORAL OBJECTIVES

19.III.1 In the broadest sense, the objectives of the sector are to increase the length of healthy life for all people in Guyana, and to reduce health disparities among social groups. Put in another way, the objectives are to ensure that, increasingly, most Guyanese enjoy a better quality of life, and to minimise the incidence of illnesses and disabilities. To this end, the focus will be on primary health care and the promotion of preventive health measures.

19.III.2 The overall operational objectives for attaining these goals are to improve the population's *access* to health care and the quality of the care that is offered, while ensuring that the health services are provided cost-effectively.

19.III.3 The question of access is double-sided. From the perspective of supply, improving access requires increasing the availability of health services and ensuring that these services are responsive to the needs and preferences of the clientele at all levels of the delivery system. From the perspective of demand, improved access requires the reduction in the household costs of accessing care (i.e. of reducing all direct and hidden costs).

19.IV THE STRATEGY

19.IV.1 Administration and Management

Ministry of Health

19.IV.1.1 The Ministry of Health will be responsible for health policy formulation, health planning, and monitoring and regulating the health sector.

19.IV.1.2 The Ministry of Health will develop the capacity to prepare service agreements, monitor their implementation and assess the performance of devolved authorities.

19.IV.1.3 ***The Ministry of Health will be restructured to reflect the decentralisation of service delivery functions. It will operate in a regulatory capacity over the entire health sector, rather than in its traditional role as the centralised manager of the public health system. Service delivery and management responsibilities will be devolved to the health authorities and other agencies, which will report to the Ministry of Health. In the re-structured Ministry, the following functions will be retained and strengthened centrally: the development of policies and strategies; the allocation of resources; the establishment of objectives; the review of performance; regulation setting; and research and development.***

19.IV.1.4 Legislation will be introduced to require allied–health–field personnel to register with a Paramedical Professional Council which will be established.

19.IV.1.5 Procurement of all pharmaceuticals and supplies for the public sector will be contracted out. A Procurement Board in charge of procurement and distribution of drugs and medical supplies will be established for this purpose.

19.IV.1.6 The Procurement Board will be autonomous and managed according to business principles. Private physicians and facilities would be able to purchase drugs and supplies from the Board. The Board will be required to carry out an assessment of needs for pharmaceuticals and supplies in the entire system, to procure them, to deliver them in required quantities to facilities in all regions of the country, and to assure their quality and their safe storage prior to delivery to the purchaser.

19.IV.1.7 All devolved Authorities will arrange their own purchases of drugs and supplies from the Board, and will negotiate prices taking into account transport costs.

Regional Health Authorities

19.IV.1.8 Regional Health Authorities (RHAs) will be established. These will be decentralised public bodies with the responsibility for health service delivery. They will assume responsibilities for operating and maintaining those health facilities that are now under the aegis of the Regional Administrations.

19.IV.1.9 The Regional Health Authorities and hospitals will be operated by Boards.

19.IV.1.10 The Boards of the RHAs will be autonomous. They will comprise members of the Guyana Medical Association, *ex officio* representatives of the Ministry of Health, with a preponderance of representatives of the Regional government and local communities.

Human Resources

19.IV.1.11 *The health personnel of the RHA's will report to a Ministry Director or functionary:* The Regional Authorities will account for their performance to an appropriate functionary at the central Ministry of Health.

19.IV.1.12 All Senior Regional Officers will be trained in health administration, by way of a structured training programme which the Ministry of Health will establish.

19.IV.1.13 Salaries in the sector will be increased. Special attention will be paid to the need to provide incentives for well–qualified medical and administrative personnel to serve in the hinterland facilities.

19.IV.1.14 In order to increase the flexibility of the public health system, the salary structures of health personnel will be de–linked from the public service. In addition, a set of special categories for health personnel will be developed.

19.IV.1.15 All personnel in key management positions, e.g., programme managers, hospital administrators, district–level health officers, medical superintendents, and public health nurse supervisors, will have adequate training in health administration.

19.IV.1.16 A manpower plan for the health sector that indicates ways to upgrade and improve staffing levels and analyses alternatives to overcome the shortage of specialist personnel such as medical technologists, pharmacists, dental technologists, radiographers and X–ray technicians will be developed.

19.IV.1.17 Adequate incentives will be developed in order to stimulate the service of health personnel in the hinterland. In order to overcome the problems of staffing, all persons trained by the Government in medical disciplines and allied fields will be asked to serve in an interior location for two years. Training local people, as in the case of the Community Health Workers, has already proved a successful strategy, and will be strengthened also in the case of extension personnel, such as Medex and Dentex. Outreach activities will be further expanded to increase access to health services in remote areas.

19.IV.1.18 Pre- and in-service recruitment and training plans will be developed and implemented in order to meet the manpower needs of the health system. At present there is no linkage between the needs of the sector and the structure of the training programmes.

19.IV.1.19 Physicians will be trained in the role of medical extension personnel and primary health care. Where such training is not otherwise available, it will be provided on an in-service basis.

19.IV.1.20 The education and training of health professionals will be updated and evaluated in order to assess the appropriateness of existing curricula and course requirements.

19.IV.1.21 Mechanisms will be put in place to ensure collaboration between the Liliendaal Annex, the University of Guyana, and the Ministry of Health on the development of curricula in order to guarantee consistency and relevance to the sector's needs.

Health programmes

19.IV.1.22 *A division of primary health care will be established* in the Ministry of Health, to work in close co-operation with the Regional units, where most of the primary care is provided.

19.IV.1.23 The Ministry will develop a strong Epidemiology department to undertake on-going health needs assessment, direct and assist health authorities and other devolved agencies to identify the health needs of their populations; and assess their effectiveness in satisfying these needs.

19.IV.1.24 The Ministry will institute a mechanism to monitor the quality of health care provided in both the public and private health sectors. Quality assurance programmes will be developed. This will include clinical and organisational audit, and the development of multidisciplinary quality assurance programmes and quality standards.

19.IV.1.25 Arms length and outreach activities will also be strengthened, including the use of mobile clinics.

19.IV.1.26 The institutional and functional capacity of the Government Analyst Department will be reorganised and strengthened so that the quality of drugs manufactured, imported and sold in Guyana might be ascertained.

Facilities and Services

19.IV.1.27 A detailed survey will be carried out to verify whether all the existing facilities of the five-tiered referral system are needed, and what is their current status.

19.IV.1.28 Hospitals, that are currently underutilised, will be closed. Funds could in this way be made available to upgrade other ‘strategic’ facilities, as well as to provide a fleet of ambulances and other transport facilities, to ensure that radio communication networks are available in all localities, and to finance an expansion of a programme of rotating visits.

19.IV.1.29 In addition, depending upon the results of the survey some of the health centers, especially those in coastal areas, might be closed. The funds released by this process will be utilised to strengthen selected District hospitals and establish more health posts in remote areas.

19.IV.1.30 Following the survey mentioned above, a *master plan for the rehabilitation of facilities*, including the acquisition and maintenance of an improved fleet of air and river ambulances, will be developed by the Ministry of Health.

19.IV.1.31 Every regional hospital and other district hospitals will have at least one ambulance for emergencies.

19.IV.1.32 All health centers will be equipped with a phone or radio for emergency calls.

19.IV.1.33 All hospitals will have adequate power generation supplies.

19.IV.1.34 Health posts will be maintained and improved, as they are vital for the tasks of medical education, preventive care and arranging for medical transport to other facilities.

19.IV.1.35 An essential Medical Supplies list will be formulated outlining types and specifications of supplies that will be stocked.

19.IV.1.36 Investments will be made to improve the storage facilities for pharmaceuticals in public hospitals, health centres and health posts.

19.IV.1.37 The programmes of rotating visits to the remotest facilities by physicians will be strengthened, so that villagers would know in advance when a doctor would be in the nearest health centre, for example on specified days of the month.

19.IV.1.38 Arrangements will be made for teams of foreign medical specialists, who are qualified in disciplines in which Guyana is in short supply, to visit the country in order to examine and treat patients.

19.IV.1.39 A Cancer Centre, headed by an oncologist, and provided with supporting staff, will be established.

19.IV.1.40 Dialysis equipment will be installed in order to provide assistance to patients suffering from relevant kidney disorders.

19.IV.1.41 The services of the Medical Faculty at the University of Guyana will be expanded and upgraded through the utilisation of Information Technology, and the linkages which will be established with a network of foreign universities both in the Caribbean and further afield. Through these Internet connections, Guyanese students will be able to undertake practical courses abroad.

19.IV.1.42 Information Technology will also be utilised extensively in the health sector, in administration, the procurement of medical supplies, in the co-ordination of the referral system, and in the rationalisation of the relationships between the central government and the region.

Financing

19.IV.1.43 Funding will be allocated to RHAs on the basis of service agreements negotiated with the Ministry of Health. Mechanisms to ensure financial accountability for public health will be put in place.

19.IV.1.44 *Hospitals operated by parastatals which receive budgetary allocations will operate under similar service agreements. As the quality of the national health system improves, and the parastatals focus increasingly on their own financial requirements, a transfer of their hospitals to the national public system will be undertaken.*

19.IV.1.45 Financial reforms will proceed in parallel with institutional reforms, in order to make expenditure on health care more effective.

19.IV.1.46 The Central Government's budget will continue to be the principal source of funding for the public system of health care. Government health expenditure will reach 5 percent of GDP by the year 2002 and will increase progressively to 10 percent of GDP by the year 2010.

19.IV.1.47 *General taxation will remain the main funding mechanism for health in Guyana. However, earmarked health taxes will be levied from the year 2003 when it is projected that the economy would be more robust.*

19.IV.1.48 Resources will be allocated from the centre to devolved authorities on the basis of a funding formula. Public resources will be prioritised to highly cost effective services, such as primary health care (services like immunisation, sanitation, vector control, diagnosis and treatment of tuberculosis, malaria, sexually transmitted diseases, the provision of maternal and child care, health education, and public health interventions).

19.IV.1.49 *Cost recovery mechanisms will not be directed to financing the health requirements of the vulnerable. Cost recovery will be utilised only for services for which public resources are inadequate, because they have been already allocated to other priority or essential health services. Indeed, user fees for well-defined services are currently charged at certain public care institutions. These include the Public Hospital Georgetown, (private rooms, pregnancy tests and physiotherapy services), at two Regional hospitals (X-rays mortuary service, laboratory tests), at the National Dental Care Centre (all treatments), at the Ptolomey Reid Rehabilitation Centre (for Orthotic and Prosthetic Appliances and hearing aids), at the National Blood Transfusion Centre, and at the Food and Drugs Administration. For other services, selective payments by patients will be imposed.*

19.IV.1.50 **Within a system of selective fees for medical services, cost recovery will never hinder access to health care and no patient will be refused service because of the inability to pay fees.**

19.IV.1.51 Financial contributions to complement the public budget will be sought from communities, or through Community Hospital Associations. This approach will also enable the communities to have a greater role in planning health services and monitoring their quality.

19.IV.1.52 The government will develop further a health insurance scheme as a supplementary financing option.

19.IV.1.53 An extensive review of the NIS and a corresponding reform programme will be developed, in order to improve the NIS actuarial basis and strengthen its performance as a provider of social health benefits.

19.IV.1.54 A modest *registration fee* for both inpatients and outpatients will be charged at the Public Hospital Georgetown, and will be introduced in all district and regional hospitals from the year 2003, after the quality of service in these areas will have been improved.

19.IV.1.55 Fees for patients bypassing the referral system

will also be charged from 2003, in order to avoid the overuse of upper-level facilities for care that could have been provided effectively at lower levels. Such a system of fees requires a definition of the rules governing the referral system and the establishment of adequate incentives and disincentives for providers of services at lower levels. These requirements will be met.

19.IV.1.56 At the Public Hospital Georgetown, *already existing charges* (e.g., physiotherapy, the use of private wards, the medical library, pregnancy tests) will be increased to reflect the real value of the resources necessary to provide the services.

19.IV.1.57 Fees will also be levied for other services, including laboratory procedures, X-Rays services, other specialised diagnostic services (e.g., CT), specialised surgery, medications. The application of some of these fees will be subject to a means test.

19.IV.1.58 The sale of services to the private sector will be extended. *Existing charges for services sold to the private sector* at the Food & Drug Administration and at the Blood Bank will be increased.

19.IV.1.59 The utilisation of equipment and facilities at the ACSD unit at the Public Hospital Georgetown will be optimised by *allowing private doctors to use equipment in public hospitals on payment of a fee*, subject to scheduling their use so that priority is given to the public physicians. Charges for patients admitted to public hospitals while under the care of private physicians will be imposed.

19.IV.1.60 *Services for which excess capacity exists will be sold to the private sector.* At the PHG these include, for example, non-clinical services such as the laundry, the kitchen, and the sterilisation unit.

19.IV.1.61 The tentative arrangements that have already been negotiated with CARICOM countries for the complementary utilisation of each other's medical facilities and services will be finalised. To this end, a special fund will be established to expedite the evacuation of indigent patients to Caribbean countries for treatment in those ailments for which services are not available in Guyana.

19.IV.1.62 No charges will be made for preventive and primary health care at the community level. This will encourage the population to give greater emphasis to seeking adequate preventive care.

19.IV.1.63 The establishment of cost recovery measures poses serious challenges in terms of public sector 'capacity'. *Several administrative and legal issues need to be resolved in order for the system described above to work effectively.* The health sector will complete effectively a process of institutional strengthening in order to tackle these problems.

Health Promotion and Protection

19.IV.1.64 Programmes addressing gender specific health issues, for example, in the areas of reproductive health, the impact of STDs and HIV/AIDS, and cancer will be developed.

19.IV.1.65 Gender sensitivity analysis will also be included in the planning, implementation, monitoring and evaluation of all health programmes.

19.IV.1.66 Information systems will be designed to provide adequate gender–differentiated information in support of policy and decision making processes.

19.IV.1.67 The curricula of schools will be reviewed to ensure that health education forms an integral part.

19.IV.1.68 Adolescent health issues will be tackled through educational programmes within schools, in collaboration with school welfare departments and social workers.

19.IV.1.69 Public awareness programmes to sensitise people about the dangers of smoking will be strengthened.

19.IV.1.70 Education on nutrition and healthy lifestyles will be brought into schools. Campaigns to reach the entire population will also be strengthened.

19.IV.1.71 Improved nutritional care will be provided in hospitals, through the recruitment of dieticians and the provision of diet counselling.

19.IV.1.72 Monitoring of the nutritional status of the population, especially the most vulnerable groups, will be carried out on a regular basis.

19.IV.1.73 The vector control programme will be revised and modified to become a ‘National Advisory Board’, with the tasks of monitoring, research, emergency and crisis response, and the preparation of technical guidelines for guidance in the execution of programmes.

19.IV.1.74 Extensive inclusion of the community in the management of these diseases and vectors will form an integral part of a national control policy to have effect. Such a policy will be prepared.

19.IV.1.75 STDs and HIV/AIDS constitute priority areas for health intervention in Guyana. The "National HIV/AIDS Prevention Plan, 1999–2001" recently prepared by the Ministry of Health will be thoroughly implemented, and rolled over, and funding from local and international organisations will be secured accordingly.

19.IV.1.76 Measures to treat all the population suffering from acute respiratory infections will be strengthened in all affected areas.

19.IV.1.77 Health education will become an integral part of the day–to–day health services given to patients and the community. These include the strengthening of counselling and informational services given to patients.

Vulnerable Groups

19.IV.1.78 A social assessment system to determine eligibility to exemptions will be established. Until such a system is in place, means assessments will be carried out at public health facility level.

19.IV.1.79 Inequalities in access to health care are of particular burden to the poorest categories. The Ministry of Health will examine ways to improve the provision and delivery, of services to these groups. The health needs of vulnerable groups are concentrated in the areas of nutritional problems, poor environmental health, vector–borne diseases and sexually transmitted diseases. Hence a health development strategy centered on the objectives of primary health care and health promotion will be designed and implemented to address the needs of the most vulnerable.

19.IV.1.80 While institutional reforms in the public health sector pursue objectives of equity, access and quality improvements of health services, an explicit stance will be taken to target the most needy.

19.IV.1.81 Policy documents addressing the health needs of each vulnerable group and detailing the action plans as well as institutional responsibilities will be prepared through processes of national consultation, involving all major social actors. This has been the case, for example, of the National Consultation on HIV/AIDS, which took place in November 1998 and was developed into a policy document and the National Plan for HIV/AIDS Prevention, 1999–2001.

19.IV.1.82 Besides the preparation of ‘basic package’ of services targeting Primary Health Care interventions, to be made accessible to the entire population, the Ministry of Health will design extra basic packages for needy groups. The institutional responsibilities for the delivery of such packages will be assigned through a process of consultation.

19.IV.1.83 Financing mechanisms, including those for cost recovery, will not be implemented unless they are accompanied by exemption policies and mechanisms targeting the most needy (the elderly, disabled, etc.), other categories of the medically indigent, and the poor (e.g.,: the employed poor, falling in the group of people at minimum wage; the unemployed; single–parent or single–earner households; the homeless; the youth with no formal education and no job).

19.IV.1.84 Special health needs of vulnerable groups will be identified and attributed adequate priority. For example the availability of drugs and access to physicians for the elderly, currently poor, is essential for the wellbeing of this vulnerable category.

19.IV.1.85 Targeting groups with certain well–identified health needs will help addressing their poverty status.

CHAPTER 20

TOURISM

20.I BASIC FEATURES OF THE SECTOR

20.I.1 The Opportunity

20.I.1.1 The economies of other countries, that are similar to Guyana, have been transformed in short order by tourism. Travel and tourism are on the brink of becoming the world's largest single industry. Worldwide, tourism receipts are projected to grow by anything from 3 percent to 6 percent annually for the next ten years.

20.I.1.2 The overall benefit of tourism is that most of the steps, which a developing country needs to take in order to improve its standard of living, are exactly those which are required to develop tourism within a country. Some of the benefits of tourism are:

- i. the provision of a larger tax base;
- ii. the generation of foreign exchange;
- iii. the creation of a significant number of new job opportunities;
- iv. the promotion of rural and interior development; and
- v. human resources development

20.I.1.3 Tourism is not simply an attempt to save the environment; it is also an important opportunity for Guyana's economic development. Properly managed, it is a non-depleting, non-consumptive industry that provides ever-increasing economic benefits in a sustainable manner.

20.I.1.4 The main distinguishing feature of the current Guyana visitor profile is a relatively high proportion of business visitors and persons visiting friends and relatives. These two categories, together with international volunteers, currently make up over 95 percent of all visitors to Guyana. Moreover, the total number of visitors to Guyana, a little more than 100,000 annually, is small compared to those who go to other tourist destinations. The potential for growth is, however, large.

20.I.1.5 The peak season for northern visitors to Guyana is in the winter months.

20.I.2 Types of Tourism

20.I.2.1 Tourism takes diverse forms, each with a special appeal to a particular class of tourist, and with its own implications for the country's infrastructure and the revenue which it can generate. Before any real and meaningful development of tourism in Guyana can take place it is necessary to have an understanding of the type of tourism products that are both suited to and suitable for Guyana.

20.I.2.2 **Nature-based tourism** can itself be advantageous to Guyana because it endeavors to respect the natural environment and the different cultures of a society. It is a type of tourism which tends to concentrate on small numbers of tourists paying relatively high prices, thus maximizing the economic benefits to the country, while minimizing those negative effects on the environment and society that are generally associated with traditional or mass tourism.

20.I.2.3 **Adventure tourism** is another rapidly growing segment of the global tourism market. Adventure tourism is characterized by activities such as observing animals in the wild, whitewater rafting, rock climbing

and mountain biking. Recent changes in modern tastes and lifestyles have made these types of holidays extremely popular, and with Guyana's undeveloped interior, there is enormous scope for the development of such a product.

20.I.2.4 **Multi-destination tourism** might also be of much benefit to our country. This is a growing segment of the tourism industry, as more holiday makers appear to be eager to spend more money and to travel farther, they have become very amenable to visiting two or more countries at a time. Given Guyana's distance from its main markets of Europe and America and its proximity to the Caribbean, joint destination packages could be very beneficial for us.

20.I.2.5 **Heritage and cultural tourism** can promote a number of Guyana's sites both for their historical and architectural value. Sites suitable for this type of tourism include Georgetown, Fort Island, Magdalenburg and Kyk-Over-Al. Amerindian, African, and Indian culture are also of potential interest to tourists. However, at the same time, it is important to protect these cultures and communities, particularly the Amerindian communities, from the negative impact which tourism can have on their traditional ways of life.

20.I.2.6 **Cruise Ship Eco-Tourists.** Cruise ship tourism of the wrong kind can destroy the very values that Guyana is trying to sell. It cannot be too strongly emphasised, therefore, that this type of tourism should be carefully monitored and controlled in order to ensure that the detrimental effects of mass tourism do not occur. Accordingly, what should be encouraged are cruise ship passengers who come here specifically as eco-tourists.

20.I.2.7 **Eco-tourism**, which has been defined as a form of travel for pleasure that is focussed on the natural and cultural environment, represents a very small but expanding niche market. It is designed to have a low impact on the environment, give the visitor a better understanding of the unique qualities of the place being visited, contribute to the well-being of the local population, and promote conservation.

20.I.2.8 **Guyana is ideally placed to take advantage of eco-tourism, which is currently the fastest growing segment of the tourism industry, because of two basic comparative advantages. First, the diversity of Guyana's flora and fauna, its virgin rainforests and its vast array of waterfalls, rivers and creeks; and second, the fact that Guyana is the only English-speaking country in the South American Amazon Basin.**

20.I.2.9 If Guyana is serious about eco-tourism it needs to embrace overarching environmental policies and ethics and promote genuine indigenous culture so as not to be perceived as fake.

20.II ISSUES AND CONSTRAINTS

20.II.1 The income which Costa Rica generates from its 2 million hectares of protected areas is as much as Guyana's GNP. While Guyana cannot expect to attain, within the foreseeable future, such high levels of revenue from tourism alone, it is more than feasible that the sector can, within 10 years, contribute 5 to 10 percent of the country's expanding GNP, provided that the right policies and incentive structures are put in place.

20.II.2 **The creation of a Protected Area System, or at the very least, the according of special status to areas known to possess unique natural characteristics, is fundamental to the development of tourism.**

20.II.3 Guyana will never overcome the antipathies of the environmentalists and the potential eco-tourist while it remains the only country on this continent without an effective national protected area system. Our country has the potential to establish a comprehensive, ecologically representative protected area network in a supportive matrix of well-managed forests and other ecosystems. A significant level of eco-tourism

development is unlikely to occur unless Guyana becomes known as a country where high standards of environmental stewardship are applied to all aspects of its natural resource utilisation and management.

20.II.4 Marketing is the mainstay of tourism anywhere in the world. Guyana’s lack of an image as a tourism destination, coupled with its failure to formulate and implement a serious public relations and marketing campaign for the country, are possibly the biggest obstacles to the development of tourism. Guyana needs to realize that marketing is a business and cannot be accomplished by amateurs in its embassies. In any event, the country does not have embassies and consulates in most of the major target cities. Professional representation in the markets that Guyana wishes to attract, with the necessary financial resources, is therefore vital. In addition, there should be adequate expenditure on advertising in all the media. It should also be appreciated that tourism is an export industry and should therefore be eligible for the benefits normally afforded to other export sectors.

20.II.5 In Guyana, the involvement and support of Amerindian communities and other people living in the hinterland is essential for the development of an effective park system that can significantly attract and support tourism. The level of this involvement should include planning and policy-making at the national and local levels. It is equally necessary that social partnerships are encouraged between Amerindians and private investors, and that Amerindian communities have access to capital to foster their own direct involvement in the industry.

20.II.6 Tourism presents Amerindians with an opportunity to build an indigenous industry which is labour intensive and would benefit local communities. Tourist agencies and the National Protected Areas System when it is established could involve Amerindians in their eco-tourism activities. Amerindians could be trained as park rangers and guides, since they have an unrivaled knowledge of the local terrain and its natural resources. Further, they are more likely to remain in these areas in the long-term than the average coastlander.

20.II.7 On the other hand, jobs linked to eco-tourism could be seasonal and subject to world economic conditions. While eco-tourism is meant to be small in scale, it has the potential to make local communities, which are more likely to suffer from a decline in the tourism sector than the country as a whole, too dependent upon it. In addition, eco-tourism has the potential of attracting productive labour from small communities that depend upon agriculture and other primary activities.

20.II.8 The influence of foreign cultures may also impact upon communities in such a way that traditional values may be lost. Moreover, the commercialization of culture can lead to the development of a pseudo-culture and folklore that have been specially devised for tourists, the alteration of traditional crafts because of commercial pressures, and the replacement of traditional handicrafts by less authentic but more saleable souvenirs.

20.II.9 Before tourism can benefit Amerindians, therefore, there must be fundamental institutional strengthening. This requires a participatory approach that must be applied through direct discussion, education and practical training programmes. Amerindian groups should also be empowered financially and otherwise, to start their own tourist ventures in a small and manageable way.

20.II.10 The development of tourism cannot be considered *in vacuo*. It must be accompanied, for example, by the provision of easier access to Guyana and its interior, and by the improvement of all types of transport infrastructure, water systems and medical services. It must be supplemented by the provision of adequate security. It must be underpinned by simpler and rational procedures for obtaining permits to travel into the interior and for obtaining visas.

20.II.11 Areas in which standards and regulations are urgently needed include those for licensing tour operators, for building eco–tourist resorts, and for customer servers and services such as taxi and boat drivers, and hotels and restaurants.

20.II.12 Policies that protect the environment and promote safety must be accompanied by policies that could attract investment. The Guyanese tourism industry is currently considered to be a high–risk business by investors and bankers because of the multiple problems which exist in the country. In addition to the financial risks normally associated with tourism itself, there are problems peculiar to Guyana: the country’s democracy is considered to be fragile; the investment climate is uncertain; and Guyana is still an emerging tourist market.

20.II.13 The behavior of tourists can be an important issue. Tourists should not only be educated about their responsibilities to the environment, they should also be educated about the environment. It is therefore useful for citizens of a host country or region to recognize the elements of the natural environment that may be of interest to the visitor.

20.II.14 Local people also need to be educated on the potential impacts of receiving tourists as well as the expectations of such visitors. An informed and trained citizenry is the backbone of any successful development process.

20.II.15 The lack of skilled staff for the tourism industry is another major constraint to its development. The design and implementation of a programme to upgrade the skills of personnel in the sector are therefore imperative.

20.II.16 At present, Government regulations and support services for the tourism industry are provided through the Tourism Division in the Ministry of Trade, Tourism and Industry. The Division is understaffed and lacks the internal systems and structures for the smooth facilitation of programmes and activities required for its work. It is affected by many of the same ailments that are prevalent in other Government departments, such as a shortage of skills, a lack of facilities and no legal mandate to perform many of the functions that are required.

20.II.17 There is a proposal for the institutional arrangements for tourism to be placed under a Minister responsible for Environment, Protected Areas and Amerindian Affairs. However, while there is merit in linking protected areas and tourism under a general environment ministry, Amerindian Affairs which involves a much wider range of issues, probably justifies having a separate Ministry.

20.III OBJECTIVES

20.III.1 The broad objective of the sector is to contribute to the sustainable development of Guyana by earning foreign exchange and providing job opportunities, while conserving the natural environment and the multi–faceted culture of the country.

20.III.2 To achieve this overall objective, a number of specific objectives can be defined.

- i. The promotion of an industry that makes appropriate use of Guyana’s resources and takes full advantage of market trends.
- ii. The development of the industry by placing the protection of its natural resource base as its highest priority through the use of sustainable practices.
- iii. The establishment of standards and practices that are commensurate with the market that is being targeted.
- iv. The development of an industry which ensures that its activities and operations are of benefit to as wide a representation of Guyanese as possible, but particularly the Amerindian community.

20.IV THE STRATEGY

20.IV.1 The central thrust of these new policies for tourism is a focused and unambiguous strategy of pursuing high quality, up–market eco–tourism in controlled numbers that do not exceed scientifically determined carrying capacities of interior sites. All other policies should flow from this central thrust.

20.IV.2 Ministerial Responsibility

20.IV.2.1 Tourism is currently part of the Ministry of Trade, Tourism and Industry. Unfortunately, the range of the portfolio of this Ministry is so wide, and trade and industry so important in the developmental strategy of our economy, that tourism is often not given the attention it deserves. Since the future of tourism will be heavily dependent on the protection and sustainable development of the environment, a Ministry of Tourism and Environment will be established.

20.IV.3 National Tourism Board or Authority

20.IV.3.1 A National Tourism Board or Authority will be established. This will replace the defunct Tourism Advisory Board. Its main responsibilities would be regulation, marketing, research and product development. The Authority will be established by an act of parliament as a body corporate.

20.IV.3.2 The composition of the Authority is critical for its success. It will therefore be composed as follows: the Permanent Secretary, Ministry of Tourism and Environment; The Permanent Secretary, Ministry of Regional Affairs; two persons from the Tourism & Hospitality Association; one person from the Private Sector Commission; one person from the Private Aircraft Owners Association; and one person from an Amerindian NGO.

20.IV.3.3 The Chairman of the Authority will be elected by the board members of the Authority and appointed by the Minister. Membership of the board will be for a period not exceeding two years.

20.IV.3.4 The Authority will be funded from contributions of both the private sector and the Government by way of a formula to be agreed upon by the parties concerned.

20.IV.4 Protected Areas

20.IV.4.1 The according of special status to areas known to possess unique natural characteristics is fundamental to the development of tourism in Guyana. Therefore the work which has already begun to establish a Protected Area System will be expeditiously concluded.

20.IV.4.2 It is important that certain criteria, including definitions for the carrying capacity and guidelines for visitation, be established for each protected area in the interest of tourism. Among the guidelines for visitation will be specifications regarding the length of stay of visitors, requirements for trained guides, the means of access to protected areas, controls on the removal of flora and fauna and the taking of pictures, access by individuals or groups, etc. Within the park itself, in order to protect the area's biodiversity, there may be areas in which absolutely no one is allowed to go.

20.IV.5 Amerindian Involvement in Tourism

20.IV.5.1 Amerindian communities will of course decide for themselves if nature-based and eco-tourism ventures are worthy of their involvement and participation, on a project-by-project basis. However, in the process of developing the tourism industry, efforts will be made to ensure that Amerindians are involved at all levels.

20.IV.5.2 Tourism activities will be started at a slow and measured pace in Amerindian communities so as not to overwhelm local capacity and result in an increase in social stresses.

20.IV.5.3 Because of the limited experience which Amerindians have with development projects, those tourism ventures that are to be started and managed by Amerindians will be accompanied by: intensive and extensive training of Amerindians in business management, and account-keeping; start-up capital; the encouragement of partnerships among Amerindians, investors and nature and conservation NGO's in developing tourism sites; and continuous information sharing and consultation with Amerindians.

20.IV.5.4 Non-governmental organisations will be encouraged to assist in all these endeavours.

20.IV.5.5 Guidelines will be provided and enforced in respect of tour operators entering Amerindian communities.

20.IV.5.6 An overall code of conduct will be developed between tour operators and the Amerindians. Such a code will provide rules, for example, concerning the taking of photographs, access to sacred sites, and times of visiting. Amerindian communities may develop stricter codes.

20.IV.5.7 The collection of head fees by Amerindian communities will be legislated, and the responsibility for this placed within the proposed Board of Tourism.

20.IV.6 Investment

20.IV.6.1 An incentive regime will be introduced that will endeavour to make the industry attractive to investors. The regime will compare favorably with those of other countries which are developing tourism and will offer no less than the following:

- a tax holiday of up to five years for hotel and resort development and tour operator enterprises;
- exemption from duty and consumption taxes for items to be used in the construction, expansion, refurbishment and equipping of licensed hotels or resorts and for the creation, expansion and equipping of licensed tour operator enterprises and tourism facilities as approved by the Board. This exemption will apply to all interior resorts, and to hotels in Georgetown of not less than 10 rooms;
- replacement and refurbishment for hotels resorts and tour operators once every 5 years; and
- accelerated capital allowances on the construction cost of the hotel or resort.

20.IV.7 Air Transport

20.IV.7.1 *The strategies for liberalising activities in the air transport sector, and for attracting investment to it, are outlined in the Transport Chapter of this National Development Strategy.*

20.IV.7.2 **The Tourism strategy is dependent upon the development of the Cheddi Jagan International Airport at Timehri to meet international requirements.** Other key imperatives are:

- the redevelopment of Ogle as a municipal airport; and
- an airstrip, as a complement of the road system, will be immediately developed to the West of Kurupukari.

20.IV.8 Visitor Safety and Security

20.IV.8.1 The security of visitors will be given priority throughout Guyana and steps to this end will include raising awareness among the local population as well as within the security forces. Training on interactions with tourists will be provided to the police force. In the long run, consideration will be given to the development of a division of police within the force who are specifically responsible for visitor security.

20.IV.8.2 Search and rescue mechanisms will be put in place with the capability of dealing with all eventualities, and will include high-level detection methods, fast and effective evacuation procedures and top level medical training and equipment. This will be facilitated by an established mechanism between the Private Sector, the Government, the police and the army.

20.IV.8.3 Tour operators will be obliged by law to possess adequate safety equipment for the tours they conduct.

20.IV.8.4 Training in first aid and CPR will be mandatory for all persons/guides conducting or in charge of tourists, and adequate emergency evacuation plans and procedures will be set for all tour operations and resorts. These safety procedures and equipment will be linked to the licensing of these operations. Failure to comply with the minimum safety standards set for the industry will carry severe penalties.

20.IV.8.5 Adequate insurance for all resorts, hotels, charter airlines and tour operations will be made mandatory and linked to the licensing of tourism operations. In order to facilitate this, the laws pertaining to insurance will be amended to give the tourism industry access to adequate levels of insurance.

20.IV.9 Marketing

20.IV.9.1 A comprehensive destination-marketing plan will be developed and implemented to allow the country to benefit from the rapidly expanding market for adventure and nature tourism.

20.IV.9.2 One of the many functions of the Guyana Tourism Authority will be the marketing of Guyana as a tourism destination.

20.IV.9.3 The Tourism Authority will handle two types of promotional activities: on-shore and off-shore. For onshore promotions, the Tourism Authority will organize group familiarization tours and other promotional functions. For offshore promotions the Tourism Authority's representatives in the major target cities will establish contacts with international travel industry partners and combine efforts to promote Guyana in the major markets of the world. In addition, the Tourism Authority will participate in trade shows and promotions that are best suited for the target markets.

20.IV.9.4 The Tourism Authority will conduct a series of seminars with the operators of qualified tourist facilities to assist in developing and improving the performance of the tourism industry.

20.IV.9.5 A tourism accreditation system will be established and implemented by the Tourism Authority and minimum design criteria will be established to ensure that nature-based tourism facilities in Guyana meet international standards for visitor accommodation. The design criteria will emphasize low impact structures, appropriate use of local materials, and proper response to the local climate in order to maximize efficiency.

20.IV.9.6 The urban zoning laws for which provision is made elsewhere in this NDS will be strictly enforced.

20.IV.9.7 Guidelines will be developed to mandate buffer zones around lodges, the distance between lodges, etc.

20.IV.9.8 A project to list all those sites in the interior that have been identified as desirable areas for the development of lodges will be formulated and implemented.

20.IV.10 Product Development and Improvement

Kaieteur Park

20.IV.10.1 The boundaries of the Kaieteur National Park will be determined as a matter of urgency. Consultative mechanisms for incorporating representatives of local Amerindian groups in the decision-making process concerning the site will be developed.

20.IV.10.2 All mining in the Kaieteur watershed and gorge below the falls will be immediately stopped.

20.IV.10.3 A comprehensive site and topography survey that will embrace the testing of soils and their bearing capacities, the examination of watershed characteristics, the location of significant site features, including types of flora and fauna and other biodiversity richness, and studies to determine any significant archaeological sites, will be undertaken.

20.IV.10.4 The OAS proposal for the Kaieteur National Park will be opened for private sector, Amerindian and other civil society comment before its finalization and implementation. Key recommendations include the following:

- A lodge facility will be constructed in the Kaieteur Park.
- The trail system in the Park will be extended.
- A boardwalk will be constructed in the Falls area.
- Ranger outposts and satellite camping facilities will be created.
- Razing of Menzies Landing and construction of security post.

20.IV.11 Other Tourism Ventures and Networks

20.IV.11.1 Eco-tourism ventures, with full Amerindian participation in identified Amerindian villages, will be developed.

20.IV.11.2 A network of small-scale eco-tourism lodges will be established at Kaieteur, Chenapau, Orinduik and near Marabiakru Cliffs.

20.IV.11.3 An eco-tourism facility will be established at the Iwokrama Field Station near Kurupukari. This will be operated in partnership with the local private sector and with Amerindian community controlled ventures, in and around the Iwokrama reserve.

20.IV.11.4 A circuit of eco-tourism facilities and activities will be put in place in and around Annai and Surama with linkages to Rock View and Karanambu Resorts in the North Rupununi.

20.IV.11.5 In the Central and South Rupununi nature-based and eco-tourism ventures will be developed with Dadanawa Ranch, Savannah Inn, the Lethem Rodeo and other related enterprises, ranches, resorts and entities.

20.IV.11.6 The border near Orinduik will be secured in order to prevent illegal incursions from miners who operate in Potaro and Mazaruni watersheds.

20.IV.11.7 Strict zoning and building codes will be enforced in Georgetown. New buildings in the city will be made to conform to Georgetown's rich architectural heritage. Sections of the city represent significant opportunities for architectural preservation and the development of tourism sites. It is important therefore that building in the city be very carefully regulated and monitored to preserve the product before it is completely devastated by new developments.

20.IV.11.8 Investors will be encouraged through tax incentives to develop small-scale inns in the style of the existing historic architecture of Georgetown.

20.IV.11.9 The Botanical Gardens will be converted into a Biodiversity Park.

20.IV.11.10 The National Museum, the Walter Roth Museum and the Nicholson Collection of African Art will be refurbished and expanded and a survey to upgrade and develop a network of other existing museums in Guyana undertaken.