# NATIONAL DEVELOPMENT STRATEGY (2001-2010)

# A POLICY FRAMEWORK

## ERADICATING POVERTY AND UNIFYING GUYANA

## A CIVIL SOCIETY DOCUMENT

# ANNEX 8

# TRANSPORT

Date of Publication: November 2000

Date finalised by Sectoral Committee: May 1999

Equivalent Chapter in Core Document: Used as Background Material for Chapter 4

## The Annexes to the National Development Strategy: An Explanatory Note

In June 2000, the National Development Strategy (NDS) of Guyana was formally presented to the President of Guyana and the Leader of the Opposition in the form of a core document, a 348 page distillation of the main elements of the analysis of the Guyana situation and the resulting strategy for action drawn from material prepared by 24 sectoral committees of the National Development Strategy Committee (NDSC). While Chapter 1 of the core document provides an outline of the origins of the NDS and the methodology of its preparation, the purpose of the present note is to explain the Annexes to the core document.

The Annexes are edited versions of the original drafts that the sectoral committees prepared, using a format that facilitated systematic thinking, though at the cost of some repetition. They are therefore longer than the corresponding Chapters of the core document, and also differ from them in other ways:

1. While the Annexes were individually edited in terms of their content, in the core document, disagreements or dissonances between Chapters were removed; for example, if the Chapter on the Private Sector proposed a strategy for Education that was in contradiction with a strategy proposed in the Chapter on Education, the two were rationalised.

2. While the core document was updated with the most recent data where possible, the Annexes generally retain their original data; for recent economic and social statistics, the attention of readers is particularly drawn to the recently completed *1999 Guyana Survey of Living Conditions*. In addition, again because of differences in when they were prepared, what was a Bill at the time of the original draft may have become an Act by the time the core document was being edited. This type of difference may be footnoted in the Annexes.

3. The treatment of the Annexes as historical documents occasionally produced another kind of difference, the main example of which is the Annex on Energy which was written before the privatisation of the Guyana Electricity Corporation, and whose strategy was largely preempted by that privatisation; while the edited Annex deliberately relied on the original material, new material was developed for the core document. These differences may also be footnoted.

It is worth noting that the updates found in the core document usually demonstrate the soundness and continued applicability of assessments made on the basis of earlier data or other information.

There are fewer Annexes than there are Chapters in the core document. For various reasons, some sectoral committee drafts were finalised in the same format as the Chapters of the core document, and there would therefore be little difference between the Chapter and the corresponding Annex. (Examples of this are the Macro-Economic Strategies and the Management of the economy; Sugar; Urban Development; Land; Housing; and The Family). The core document also includes Chapters for which there were no corresponding sectoral committee drafts; the first three Chapters of the core document (Origins and Methodology, National Objectives and Governance) are examples.

For those sectors where there are both separate Annexes and core document Chapters, the titles and numbering of the two correspond except in two cases: one, the corresponding Annex for the Chapter on Manufacturing is titled Manufacturing and Technology and includes material on Science and Technology that the core document had placed elsewhere; and two, the corresponding Annex for Chapter 4, Macro-Economic Policy, is Annex 4, Financial Sector Policy, because the material prepared for the Financial Sector Policy Annex was incorporated into the Chapter on Macro-Economic Policy.

The National Development Strategy was published in summarised form (the core document) for the practical reason that few people would have the time to read the over 700 pages represented by the Annexes. Yet the Annexes have a clear value. They include background information and assessments that were too detailed for inclusion in the core document, but which trace the process that shaped the strategy. Above all, they preserve for us and for posterity the earlier thinking, and the full range of thinking, of the women and men whose work provided the foundation of the NDS. In doing so, they honour the labour which the sectoral committees put into distilling their own work and life experience and the views of the public they consulted in the process. It is this foundational material that is now being published, making the National Development Strategy of Guyana available in both summary and extended forms.

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# LIST OF ACRONYMS

| | |
|---|---|
| ATS | Air Traffic Services |
| BWIA | British West Indian Airways |
| CARICOM | Caribbean Community |
| CJIA | Cheddi Jagan International Airport |
| CNS/ATM | Communication Navigation Surveillance/Air traffic Management |
| CTPU | Central Transport Planning Unit |
| DBST | Double Bituminous Surface Treatment |
| DHB | Demerara Harbour Bridge |
| DHC | De Haviland Company |
| DME | Distance Measuring Equipment |
| dwt | Dead Weight Tonnes |
| EBD | East Bank Demerara |
| ECD | East Coast Demerara |
| ECRRP | Essequibo Coast Road Rehabilitation Project |
| ERP | Economic Recovery Programme |
| EU | European Union |
| GDF | Guyana Defence Force |
| GTSL | Guyana Transport Services Limited |
| ICAO | International Civil Aviation Organisation |
| IDB | Inter-American Development Bank |
| ILS | Instrument Landing System |
| LIAT | Leeward International Air Transport |

| | |
|---|---|
| MRRP | Main Road Rehabilitation Project |
| NDB | Non-Directional Beacon |
| PAPI | Precision Approach Path Indicator |
| PUC | Public Utilities Commission |
| RAD | Research and Design |
| RDC | Regional Democratic Council |
| SC | Shorts Company |
| SLM | Surinam Airways |
| STOL | Short Take Off And Landing |
| T&HD | Transport and Harbours Department |
| UK | United Kingdom |
| UMDA | Upper Mazaruni Development Authority |
| USA | United States of America |
| USAID | United States Agency for International Development |
| VHF/DF | A Very High Frequency Direction Finder |
| VOR | Very High Frequency Omni-Directional Radio Range |
| WCB | West Coast Berbice |

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# ANNEX 8

# TRANSPORT

The transport sector comprises the physical facilities, terminals, fleets and ancillary equipment of all the various modes of transport operating in Guyana, the transport services, transport agencies providing these services, the organisations and people who plan, build, maintain, and operate the system, and the policies that mould its development.

## I. Basic Features of the Sector

### A. Roads

1. Historical Development of the Main Road Network

Historically, Guyana's main product became sugar, which was produced from sugar cane grown on plantations on the coastal plain and the banks of the lower reaches of the main rivers. The sugar was produced in factories, from where it was transported to Georgetown for export overseas. On the East Coast of Demerara, it was transported by railway, and from the other parts of the country, by water. With the construction of a bulk sugar loading facility in Georgetown in 1960, the mode of transporting sugar on the East Coast of Demerara was changed from railway to road, and following the construction of the Demerara Harbour Bridge in the 1970s, the transportation of sugar from the West Coast of Demerara was switched from water to road.

The road system which developed on the coast served initially to link the plantations and to provide access to property. Most of the population on the coast was located between Parika and New Amsterdam and historically, the mobility of people and goods across this area was provided by two railways and two ferries. Between 1957 and 1968 the East Coast Demerara Road and the West Coast Berbice Road were paved, while the West Coast Demerara Road and East Bank Essequibo Road up to Parika were paved during the 1970s. The improvement of the road system between Parika and Rosignol resulted in a shift of movement of people and goods from the railways to the roads, and the railways became uneconomical to operate and were closed in the 1970s. Transportation across the mouth of the Demerara River was improved in 1978 when the Demerara Harbour Bridge was opened to traffic, and the ferry system between Georgetown and Vreed-en-hoop was then restricted to passengers and significantly reduced in scale. One of the large ferry boats that used to operate across the Demerara River was transferred to the mouth of the Berbice River. In 1980, the Rupert Craig Highway, with four traffic lanes, was opened to improve mobility between Better Hope and North Georgetown.

Other important roads on the coast are the Corentyne Highway and the Essequibo Coast Road. The Corentyne Highway, which has two lanes, was initially paved in the 1950s and extends from New Amsterdam to Crabwood Creek. It was reconstructed and paved in 1970 - 72. With the opening of the Guyana - Suriname Ferry in 1998, this highway was extended to Moleson Creek. The Essequibo Coast Road is a two lane road extending from Supenaam on the Supenaam River to Charity on the Pomeroon River. This road was initially surfaced with burnt

clay. During the late 1960s and early 1970s, the road between Adventure and Anna Regina was reconstructed and paved, and between 1993 and 1998 most of the road between Supenaam and Charity was rehabilitated and paved.

South of Georgetown, the main road is the East Bank Demerara Road, a two lane road which extends from Georgetown to Timehri, where the Cheddi Jagan International Airport (CJIA) is located. This road was paved in the 1950s and early 1960s. It was rehabilitated by overlaying it with asphaltic concrete in 1995-97. In the period 1966 – 68, Soesdyke, located on the East Bank Demerara Road, was connected to Mackenzie by a modern two lane highway, now called the Soesdyke - Linden Highway. The highway was rehabilitated in 1997-99 by overlaying the stretch between Soesdyke and Kuru Kuru with asphaltic concrete and sealing the rest with a thin coat of asphalt and fine aggregate. The superstructures of the bridges, which were of greenheart, were reconstructed with reinforced concrete to a higher standard of live load.

The Soesdyke - Linden Highway was constructed as one phase of a highway connecting Georgetown with Lethem. A feasibility study for such a highway was done by a US consulting firm, Metcalf and Eddy, in 1961. This study identified two feasible routes for connecting Georgetown to Lethem, one through Bartica and the other through Mackenzie. The benefit-cost ratio of the route through Mackenzie was found to be superior and this route was recommended. In the 1950s and 1960s the Government of Guyana had selected the route through Bartica. One advantage of this route was that there was a road link between Bartica and Mahdia, developed in the 1930s. Improvements were made to this road in the 1950s and 1960s, and an unsuccessful attempt was made to construct the link between Parika and Bartica in 1962. In the early 1970s work was done on extending the road south of Mahdia. In 1974 the Government of Guyana officially abandoned the attempt to connect Georgetown to Lethem via Bartica and Mahdia, and switched to the route through Mackenzie, which had become part of the town of Linden. In 1968, a bridge was built across the Demerara at Linden, and it was decided that the route to Lethem would cross the Demerara River at Linden and go south along the watershed of the Demerara and Essequibo Rivers, through Mabura, to Kurupukari. From Kurupukari it would parallel the old cattle trail to Annai, and from Annai it would follow an existing road to Lethem.

In the early 1970s a two-lane road with modern geometry and a laterite surface was built between Linden and Rockstone. In the late 1970s, a similar two-lane road with modern geometry and surfaced with laterite was constructed between the Linden/Rockstone road and Mabura. In 1990-91 a two-lane laterite road was constructed between Kurupukari and Annai and a vehicle ferry installed at Kurupukari. Since there was an existing road between Mabura and Kurupukari and between Annai and Lethem, this meant that it was now possible for vehicles to travel between Georgetown and Lethem. In the 1990s, this led to the movement of people and goods between Georgetown and Lethem by 4-wheel drive vehicles on a daily basis.

In 1974-78 an attempt was made to construct a road between Rockstone and Kurupung to facilitate the construction of a large hydroelectric station. From Rockstone it headed north to Suribanna, where a pontoon ferry was installed across the Essequibo River to Sherima, and from Sherima it went westward, intersecting the Bartica-Mahdia Road at Allsopp Point, 19 miles from Bartica. From Allsopp Point the road followed the existing road towards Bartica and branched off 5 miles from Bartica, going to Teperu in the lower reaches on the Mazaruni River. At Teperu

a pontoon ferry was installed across the Mazaruni River to Itaballi, and from Itaballi the road went westward to Peter=s Mine on the Puruni River, continuing from there as as a penetration road to Kurupung. This road is referred to as the UMDA Road.

By 1998 the foundations for the main road network had been laid. In the east-west direction on the coast the main road stretched from Moleson Creek on the east, through Georgetown to Charity on the west. In the north-south direction the main road extended from Georgetown in the north through Linden, Mabura, Kurupukari, and Annai to Lethem in the south. While the coastal east - west main road was paved, the north - south main road was paved only between Georgetown and Linden. There is a hinterland east - west main road system which extends from Kwakwani in the east, through Ituni, Linden, Rockstone, and Sherima to Bartica in the west. Linden is therefore a hub for road transportation in the hinterland.

2. The Existing Total Road Network

In total, the existing road network is approximately 1,610 miles long, comprising:

a. Primary roads in the coastal and riverain areas serving the agricultural sector, and the road to Linden serving the mining and forestry sectors (19 percent).

b. Feeder roads: linking the agricultural areas along the coast to the primary road network (20 percent).

c. Interior roads and trails that serve the interior (61 percent).

The main road in Guyana is 270 miles long and runs parallel to the coast, extending from Charity in the west to Moleson Creek in the east. Access roads or feeder roads link the main roads with residential areas or agricultural areas that are some distance off the main road. Most are in poor condition. Through the Ministry of Public Works, SIMAP, and the Basic Needs Trust Fund, the Central Government has targeted several access roads for complete rehabilitation. In Region 4 in particular, many have been rehabilitated. Recently, the Buxton access road, the Ogle airport road, and the Industry access road have been rehabilitated.

Outside the existing main roads there are several other interior roads and/or trails which comprise approximately 1,570 km. Most of those roads are unpaved and will deteriorate if maintenance remains inadequate. These roads/trails are found mostly in the hinterland and riverain areas which are not densely populated compared with the coast. They however link important mining and forestry activities and facilitate transportation between mining and forestry communities and the more developed coastal areas. Parts of this road/trail network can be developed into an arterial road system linking the hinterland communities with each other and to the main road network.

Table 8-1 - Guyana’s Road Network (km) by Road Classification, Surface Type, and Condition

| | Paved | | | | Unpaved | | | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Good | Fair | Poor | Sum | Good | Fair | Poor | Sum | Km | % |
| Primary network | 152 | 185 | 98 | 435 | - | - | 58 | 58 | 493 | 19 |
| Coastal area minor roads | - | 42 | 24 | 6 | - | 24 | 424 | 448 | 514 | 20 |
| Interior roads/trails | - | 21 | - | 21 | 282 | 438 | 829 | 1,549 | 1,570 | 61 |
| TOTAL | 152 | 248 | 122 | 522 | 282 | 462 | 1,310 | 2,054 | 2,576 | 100 |
| Percent | 6 | 9 | 5 | 20 | 11 | 18 | 51 | 80 | 100 | |

Source: World Bank IRP staff appraisal report, mission estimates

It is estimated that roads carry close to 80 percent of the passenger traffic and about 33 percent of the freight. Table 8-2 shows that in 1993, in addition to private cars, 2,843 hire cars and 4,068 buses provided road passenger transport. Freight transport was provided by 2,432 trucks and 3,241 tractor/trailers.

Table 8-2 - Vehicle Fleet, 1989-1993

| Vehicle Type | 1989 | 1990 | 1991 | 1992 | 1993 |
|---|---|---|---|---|---|
| Private cars | 15,868 | 14,733 | 14,951 | 16,416 | 17,795 |
| Hire cars | 2,738 | 2,446 | 2,256 | 2,686 | 2,843 |
| Buses | 1,920 | 2,325 | 1,937 | 2,076 | 4,068 |
| Lorries | 1,270 | 1,623 | 1,543 | 1,859 | 2,432 |
| Station wagons | 1,120 | 2,070 | 1,857 | 2,061 | 2,224 |
| Construction vehicles | 110 | 9 | 86 | 109 | 218 |
| Hearses | 11 | 9 | 21 | 24 | 25 |
| Ambulances | 15 | 13 | 9 | 12 | 12 |
| Fire Dept. Cars | 10 | 7 | 8 | 14 | 24 |
| Tank wagons | 18 | 12 | 16 | 20 | 20 |
| Motorcycles | 4,990 | 4,284 | 4,774 | 5,440 | 6,695 |
| Vans, pick-ups | 1,525 | 1,944 | 1,984 | 2,135 | 2,543 |
| Trailers | 1,150 | 991 | 931 | 1,369 | 1,795 |
| Articulated vehicles | 59 | 11 | 32 | 38 | 45 |
| Tractors | 2,250 | 2,112 | 2,303 | 2,815 | 3,241 |
| TOTAL | 33,054 | 32,589 | 32,708 | 37,074 | 43,980 |

Table 8-3
Transport and Harbours Department Traffic
1990 - 1994

| Service | Passengers '000 | | | | | Freight '000 tons | | | | | Vehicles '000 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1990 | 1991 | 1992 | 1993 | 1994 | 1990 | 1991 | 1992 | 1993 | 1994 | 1990 | 1991 | 1992 | 1993 | 1994 |
| Berbice Ferry | 1,161 | 1,033 | 1,306 | 1,412 | 1,635 | 69 | 97 | 95 | 110 | 92 | 130 | 141 | 136 | 158 | 140 |
| Demerara Ferry | 2,032 | 953 | 953 | 835 | 997 | 12 | 2 | 1 | 2 | 1 | - | - | 2 | - | - |
| Parika/Leguan | 100 | 89 | 89 | 142 | 112 | 3 | 3 | 3 | 2 | 2 | 5 | 4 | .80 | 5 | 4 |
| Parika/Bartica | 32 | 60 | 49 | 47 | 38 | 3 | 4 | 6 | 6 | 17 | .70 | 1 | - | 1 | 1 |
| Parika/Adventure | 164 | 107 | 94 | 122 | 150 | 16 | 13 | 14 | 16 | 3 | 9 | 6 | 8 | 13 | 12 |
| Berbice River | 4 | 10 | 9 | 11 | 11 | 1 | 1 | 2 | 3 | 2 | - | - | - | - | - |
| North West District | 6 | 6 | 6 | 6 | 6 | 4 | 4 | 6 | 5 | 4 | 0 | 0 | 0 | 0 | 0 |

3. Maintenance

To maximise the benefits to be obtained from investment in roads, the roads must be maintained so that the riding quality does not deteriorate. Failure to do so results in increased vehicle operating costs, increased time taken in moving from one point to another, increased discomfort, and reduced safety. Timely maintenance prolongs the intervals between rehabilitation.

In Guyana, the maintenance of the main road system has been seriously inadequate. In the days when the coastal main road system was unpaved, maintenance work was critical to keep roads passable during the rainy season. After they were paved, the task became to maintain riding quality and the traffic control signs. However, over the years, pavement markings and road signs on the paved roads have not been consistently maintained, and riding quality has certainly been neglected.

In 1980 the Ministry of Works was regionalised and maintenance of public roads outside of Georgetown became the responsibility of the Regional Democratic Councils (RDCs) which were set up that year. Budgets for the maintenance of the public road system were then put up directly by the RDCs to the Ministry of Finance. This resulted in standards of public road maintenance varying between Regions. In the late 1980s the responsibility for the maintenance of the Soesdyke-Linden Highway was returned to the Roads Administration Division (RAD). The maintenance of the public roads continued to be inadequate, and this was largely due to inadequate financing.

4. Major Bridges

The coastal main road system has gaps where it intersects the Essequibo, Demerara and Berbice Rivers. People and goods move across these gaps by ferry systems and in the case of the Demerara River, by the Demerara Harbour Bridge. The existing volume of traffic crossing the Essequibo River is not enough to justify the construction of a bridge.

a. Demerara Harbour Bridge

The Demerara Harbour Bridge (DHB) is a two lane floating bridge, 1.2 miles long, near the mouth of the Demerara River. It is primarily a low-level bridge with an elevated span with a vertical clearance of 26 feet in the middle of the river to permit small craft to pass. Across the shipping channel there are two spans which retract to permit ocean-going vessels to pass. The DHB is a toll bridge and from mid-1998, toll revenue has been credited to the account of the DHB and not to the Government of Guyana. This is a step towards making the DHB an autonomous statutory authority, a measure which is expected to happen in 1999-2000. At present the toll revenue meets the operational and maintenance costs of the bridge.

During the period 1991-99 the DHB was rehabilitated under a US$9M grant from the Lomé IV EEC/ACP agreement. Most of the grant was spent on replacing the steel floating piers. Given the high volume of vehicular traffic across the bridge, closure to vehicles during the rush hour is avoided because of the limited space to store vehicles at each end of the bridge. As the volume of vehicular traffic flows across the DHB and the number of ocean-going vessels sailing

upriver increases over the coming years, the conflict between vehicles and vessels for the same space will become unmanageable, and either a tunnel or high-level bridge will have to be constructed to accommodate the traffic. Because tunnels are significantly more expensive than bridges, a high-level bridge would be recommended. The new steel floating piers are expected to last until 2012 with good maintenance, and will need replacing after that if the bridge is to be kept in use. In replacing them, the use of pre-stressed concrete floating piers should be considered.

b. Berbice River Bridge

At present, crossing the Berbice River at New Amsterdam by ferry can take between one to three hours. It involves long vehicle queues, a priority system, and significant irritation. Many believe that the deficiencies of the present ferry system considerably suppress the demand for crossing the river, and that this demand can be met only if a two lane, high-level bridge is built across the Berbice River. The Government of Guyana has publicly stated its intention to construct such a bridge.

A study of the types of bridge that may be used to cross the Berbice River was made in 1997 by a consultant from the USA. This was financed by IDB. A 1997 pre-feasibility study by the Government of India recommended a feasibility study, but up to the present time this has not been done. However, a broader feasibility study for improved crossing of the Berbice River is to be financed by IDB in 1999-2000; this study will consider not only a bridge, but a modern ferry system as well. The Government is exploring the possibility of executing the bridge project by private means or by a joint venture between Government and private firms.

c. Demerara River Bridge at Linden

The existence of the Demerara River Bridge at Linden is an important factor in making Linden the hub of hinterland road transport. This bridge was opened to traffic in 1968 and is currently owned by Linden Mining Enterprise (LINMINE). It is a steel structure with a reinforced concrete deck with a single rail track running along the centre.

The Demerara River Bridge was constructed primarily to enable bauxite to be transported from mines on the west bank of the Demerara River to the processing plant on the east bank. However, bauxite is no longer transported across the bridge, which now serves primarily to enable vehicles to drive across the river in one direction at a time. The bridge was rehabilitated in 1995 and the rehabilitation cost is being recovered by LINMINE by means of tolls collected from bridge users. As traffic volume increases over the years, the capacity of the bridge will need to be expanded to carry two lanes of traffic.

5. Regulatory Framework

The regulatory functions of the Minister responsible for transport, who is advised by the Central Transport Planning Unit (CTPU) of the Ministry of Public Works and Communications, are not being exercised with respect to the fares for bus transportation. The CTPU has responsibility to advise on fare structures for public transportation. Following the implementation of the Economic Recovery Programme (ERP) there was an inflow of privately-

owned minibuses, which replaced a publicly-owned bus company in providing bus transportation. Fares were initially set by the Minister responsible for transport under advice from CTPU. With market mechanisms superseding planning procedures in the allocation of resources after the ERP, the prices used to determine the cost of operation of minibuses shifted from being determined by centrally-administered rates of exchange to being determined by rates. After a period of trying to regulate minibus fares in these conditions, the attempt was abandoned and market forces of supply and demand were allowed to set the fare structure. Minibus operators have from time to time announced fare increases due to increased cost of inputs, but these increases are usually resisted by the Guyana Consumers' Association on the ground that they are unjustifiably large. The Association has stated that minibuses which provide public transportation services should be recognised as a public utility and regulated by the Public Utilitites Commission (PUC). The Minister responsible for consumer protection has attempted from time to time to keep minibus fares from rising unreasonably by issuing public statements intended to discourage passengers from paying unreasonable increases.

6. Railways

Commercial railway service in Guyana was operated by T&HD until 1974. The two areas of operation were Vreed-en-Hoop/Parika (18.5 miles) and Georgetown/Rosignol (65 miles). Railway service facilitated the movement of passengers and cargo. With the upgrading of the West Coast Demerara/ East Bank Essequibo roadway and the East Coast Demerara/West Coast Berbice roadway, the Government decided in the mid-1970s to cease operating the T&HD railway services.

Railway service is still in operation in Linden, mainly to move bauxite ore. In the Matthews Ridge area there is a 32 mile railway service. Formerly, the railway was used to move passengers and ore mined by the Manganese Company that operated there.

As a mode of transportation, railways could play an important role in the development of Guyana, especially if hydropower is developed on a significant scale. In the hinterland and interior areas, the establishment of railways could be an option. It could facilitate the mining and forestry sector activities, and connect the interior with the coastal area.

## B. Air

1. Development of Air Transport

Air transport plays a vital role in the development of Guyana. Within the country, it provides a link between the coastal areas and communities in the hinterland, many of which are inaccessible by any other means of transportation. Thus, the economic and social well being of these areas and their integration into the fabric of the nation are critically dependent on the availability of air transport. Externally, passengers are moved to and from the country almost entirely by air, and the potential of this mode of transport for the carriage of cargo, especially exports, continues to increase.

Although air transport in Guyana had its early beginnings in the 1920s when the first "bush" services were introduced, Government=s serious participation can be dated from 1947 when a Director of Civil Aviation was appointed to regulate the industry.

In 1955, the Government purchased the British Guiana Airways, a private airline that had been operating regular internal services since 1939. External services continued to be supplied almost exclusively by foreign airlines until Guyana Airways Corporation commenced regional air services in 1979.

In 1972 the Guyana Airways Corporation initiated a cargo service to Miami, but its real entry into international passenger operations can be dated to 1979 when it commenced scheduled regional services with two HS748 aircraft. Subsequently, restrictions on the repatriation of profits in foreign exchange and other circumstances contributed to the withdrawal of services to Guyana by foreign airlines, with the exception of BWIA, and Guyana Airways Corporation was obliged to fill the breach by commencing jet operations to Miami, New York and Toronto.

By 1980, Guyana Airways Corporation=s domestic operations started to deteriorate for a number of reasons, not least among them the unrealistically low fares it was required to charge and the lack of access to foreign exchange for imported aircraft parts and other requirements. At the same time, military aviation which had been used to supplement the efforts of Guyana Airways Corporation also suffered a deterioration, again because of the scarcity of foreign exchange.

After 1980 the private sector began to fill the gap and by 1991, three major domestic charter operators had emerged. Guyana Airways Corporation=s domestic service continued to go downhill, and hit bottom in 1993 when it started the year with only one Twin Otter DHC-6 to service the entire country. Under new management, it was revitalised and saw a partial return to its original domestic role with the addition of two Shorts Skyvan SC7 aircraft and a second Twin Otter DHC-6 aircraft. Several domestic scheduled routes were re-introduced.

At present, there are nearly 200 airfields, more than 100 of which are in use across the country. Ogle, one of the main secondary aerodromes, is located about 6 miles east of Georgetown. It is the base from which small private aircraft operate regular and chartered flights from the coastland to the hinterland and overseas.

The average airfield is unpaved and approximately 2500 feet long. This limits the class of aircraft that can use these airfields. In addition, the general state of these airfields is borderline even for STOL operation. Many of them become unserviceable during rainy season periods.

2. <u>The Cheddi Jagan International Airport, Timehri</u>

Guyana has one international airport, Cheddi Jagan International airport (CJIA), which is located at Timehri, about 25 miles south of Georgetown. This Airport has been much improved since 1996. Extensive expansion has more than doubled the size of the terminal and made it more user-friendly. A modern departure wing with adequate check-in counters and facilities for airlines and comfortable areas for departing passengers has been added. Immigration and

Departure Gate facilities were also improved. A wider array of duty-free shops and even a business centre are also planned for early 1999. The Immigration and Airport Security Officers have attractive new uniforms and the entire aesthetics of the building has improved. The level of safety has risen, new runway lights have been installed and stand-by power is adequate. An up-to-date summary of the situation at Cheddi Jagan International Airport, Timehri as of January 1999 is as follows:

a. *Crash Fire Rescue Services.* The airport is again classified at Category 7. This means that emergency service will be provided to aircraft up to an overall length of 49m and a fuselage width of 5m. This will include most of the medium- to long-range commercial jet aircraft in production.

b. *Security.* There has been a substantially increased security presence at the Cheddi Jagan International Airport. This is due to the contracting of security agencies and additional police ranks. Installation of new apron floodlights, surveillance cameras and electronic locks have also helped to increase security. The re-fencing of the airport perimeter is still not complete, but the Cariforum Project is committed to remedying that in 1999.

c. *Telecommunications and Navigational Aids.* Maintenance of these facilities continues to be adequate, despite the fact that this Section is operationally constrained by the Civil Aviation Department=s inability to attract sufficient qualified staff.

The ILS/DME is fully operational. There are plans to reduce dependence on the Outer Locator NDB by introducing an ILS/DME Approach Procedure. The VOR is also fully operational, but its co-located DME only transmits over a short range. The acquisition of parts is required to correct this fault. The Timehri NDB still operates proficiently despite the fact that this type of navigation aid has become obsolete and will have to be replaced under the CNS/ATM Plan. The VHF/DF is working, but its capability is limited. It is planned to install a remote station that will improve its capability by providing a position Afix≅. The High Frequency (HF) communications console was prone to lightning strikes and has been replaced by an Extended-range VHF system with a 200 watts transmitter. HF frequencies continue to be monitored on stand-alone equipment.

d. *Other Facilities and Services.* The Control Tower has undergone extensive rehabilitation over the years and is now in a fair condition. Under the Public Administration and Cariforum projects, much-needed computers and other modern equipment were acquired with the intention of improving the operation of the Air Traffic Services. The Air Traffic Services Training School was also refurbished under capital expenditure to improve its capability for local training of ATS staff.

Airport Management has also benefited from the projects, but more training courses are still required.

Two cargo operators - Laparkan and Amerijet - provide covered storage facilities. In addition, Laparkan also has refrigeration facilities. Containerised shipping by air is not fully utilised at this time.

The Meteorological Services have been greatly improved following the acquisition of an automated weather station, computerised forecasting equipment and other modern equipment from donor agencies including Cariforum.

3. The System of Navigational Aids

The existing system of navigational aids in the country comprises the following components:

At Timehri:

a. One Very High Frequency Omni-Directional Radio Range (VOR) with Distance Measuring Equipment (DME) for *en route* navigation and non-precision approaches.

b. A Non-Directional Beacon (NDB), for en-route navigation and non-precision approaches.

c. An Instrument Landing System (ILS) with outer locator NDB and co-located DME for precision approaches to Category 1 level.

d. Two (2) Precision Approach Path Indicator Systems (PAPI) for Runways A06" and A24".

e. A Very High Frequency Direction Finder (VHF/DF).

In the Hinterland: Two Non-Directional Beacons (NDB) at Kamarang and Kaieteur.

4. Organisation and Administration of Air Transport

The Civil Aviation Department of the Ministry of Transport and Hydraulics is responsible for the following:

- Regulation of air transport/civil aviation.
- Licensing of aerodromes, airstrips, pilots, engineers and aviation-related facilities.
- Regulation, operation, and maintenance of the Air Navigation System and Air Traffic Services.
- Aviation security.
- Airworthiness
- Accident investigation.
- Search and Rescue.
- Operation of all government airports and airfields.

The Air Transport Advisory Board is responsible for advising the Minister of Transport and Hydraulics on approval for the provision of flight operations and approval of operations and equipment, rates, fares, and tariffs.

Air transport is provided by the following public and private-owned companies:

- Guyana Airways Corporation: domestic and international flights.
- Guyana Defence Force: military operations, medevac and commercial operations.
- Privately-owned Guyanese airlines: domestic and international flights (Air Services Ltd., Roraima Airways Ltd, Trans Guyana Airways Ltd).
- Guyanese-owned agricultural operations (Guyana Sugar Corporation, Kayman Sankar Aviation Ltd).
- Foreign airlines: BWIA, SLM, LIAT, Laparkan (cargo only), Amerijet (cargo only), Air Caribbean, META.

Aviation support services include:

- Air meteorological services provided by the Hydrometeorological Department of the Ministry of Agriculture.
- Crash, fire, and rescue services on the airport provided by the Ministry of Home Affairs at the Cheddi Jagan International Airport and Ogle Aerodrome.
- Passenger and cargo-handling services (Amerijet, BWIA, Guyana Airways Corporation, Laparkan, Roraima Airways Ltd, Timehri Aviation Services Inc).
- Passengers= processing services provided by Immigration, Customs, Health and Quarantine Authorities.
- Pilot Training (Aviation Training Institute).
- Aeronautical Engineer Training (Art Williams/Harry Wendt Aeronautical Engineering School).
- Maintenance Organisations (Air Services Ltd, Caribbean Aviation Maintenance Services Ltd, Guyana Airways Corporation, Guyana Defence Force, Guyana Sugar Corporation).

Guyana is a member of the International Civil Aviation Organisation (ICAO), which establishes all Civil Aviation standards.

Table 8-4
Fleet of Aircraft in Guyana for Commercial Domestic Services, 1998

| Operator | Serviceable Aircraft | Total No. Passengers | Total Payload (lb.) |
|---|---|---|---|
| A Mazaharally & Sons Ltd | 1 x Cessna 206<br>1 x Cessna 182<br>1 x Cessna 172 | 5<br>3<br>3 | 1050<br><br>500 |
| Air Services Ltd | 2 x BN-2A Islander<br>2 x Cessna 206<br>1 x Piper Seneca | 18<br>10<br>5 | 3050<br>2100<br>675 |
| Guyana Sugar Corporation | 1 x Cessna 185 | 4 | 1050 |
| Guyana Airways Corporation | 2 x Shorts SC7<br>2 x DHC Twin Otter | 34<br>36 | 5400<br>6000 |
| Mekdeci Aviation Ltd | 1 x BN-2B Islander | 9 | 1525 |
| Roraima Airways Ltd | 1 x BN-2A Islander<br>1 x BN-2B Islander<br>1 x Cessna 402 | 9<br>9<br>7 | 1525<br>1525<br>1200 |
| Trans Guyana Airways | 1 x Shorts SC7<br>1 x Cessna 208B<br>5 x BN-2A Islander<br>2 x Cessna 206<br>2 x Cessna 172 | 17<br>13<br>45<br>10<br>6 | 3170<br>2860<br>7625<br>2100<br>750 |

Table 8-5
Fleet of Aircraft in Guyana for Military Services, 1998

| Operator | Serviceable Aircraft | Total No. Passengers | Total Payload (lb.) |
|---|---|---|---|
| Guyana Defence Force | 1 x BN-2A | 9 | 1525 |

Table 8-6
Fleet of Aircraft in Guyana for Amphibian Services, 1998

| Operator | Serviceable Aircraft | Total No. Passengers | Total Payload (lb.) |
|---|---|---|---|
| Air Services Ltd | 1 x Cessna 185F | 3 | 550 |
| Trans Guyana Airways | 1 x Cessna 185F | 3 | 550 |

Table 8-7
Fleet of Aircraft in Guyana for Aerial Application Services, 1998

| Operator | Serviceable Aircraft | Total No. Passengers | Total Payload (gals) |
|---|---|---|---|
| Guyana Sugar Corporation | 1 x S2R-T34<br>2 x S2R | N/A<br>N/A | 510<br>800 |
| Kayman Sankar Aviation | 1 x S2R-T34<br>2 x S2R | N/A<br>N/A | 510<br>800 |

Source: Aircraft Owners= Association of Guyana Inc.

Table 8-8
Aircraft Movements at Ogle Aerodrome from April – December, 1997

| Aircraft Type | Total Movements |
|---|---|
| Shorts SC7 | 579 |
| DHC Twin Otter | 8 |
| S2R Crop Duster | 405 |
| BN-2A Islander | 5,612 |
| Cessna 208B Grand Caravan | 674 |
| Cessna 402 | 369 |
| Cessna 206 | 3,297 |
| Piper Seneca | 126 |
| Cessna 185F | 371 |
| Cessna 182 | 490 |
| Cessna 172 | 2,447 |
| **Total for 9 months of 1997** | **14,378** |

| | |
|---|---|
| **Full year equivalent** | **19,500** |

Extracted from: Privatisation Options for Ogle Airport, 1998

Table 8-9
International Aircraft Movements at Cheddi Jagan International Airport, 1998

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEP | 234 | 224 | 208 | 206 | 210 | 191 | 242 | 227 | 234 | 225 | 208 | 282 |
| ARR | 235 | 220 | 210 | 203 | 212 | 190 | 240 | 224 | 226 | 234 | 207 | 275 |
| TOTAL | 469 | 444 | 418 | 409 | 422 | 381 | 482 | 451 | 460 | 459 | 415 | 557 |

Source: Civil Aviation Department, Guyana

Table 8-10
Domestic Aircraft Movements at Cheddi Jagan International Airport - 1998

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEP | 280 | 264 | 270 | 259 | 300 | 386 | 384 | 165 | 150 | 131 | 177 | 371 |
| ARR | 278 | 264 | 272 | 259 | 299 | 385 | 384 | 164 | 149 | 133 | 177 | 370 |
| TOTAL | 558 | 528 | 542 | 518 | 599 | 771 | 768 | 329 | 299 | 264 | 354 | 741 |

Source: Civil Aviation Department, Guyana

Table 8-11
All Aircraft Movements at Ogle Aerodrome, 1998

| | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DEP | 690 | 634 | 651 | 680 | 728 | 705 | 635 | 611 | 650 | 674 | 654 | 643 |
| ARR | 690 | 635 | 650 | 680 | 728 | 706 | 635 | 611 | 651 | 674 | 653 | 644 |
| TOTAL | 1380 | 1269 | 1301 | 1360 | 1456 | 1401 | 1270 | 1222 | 1301 | 1348 | 1307 | 1287 |

Source: Civil Aviation Department, Guyana

### C. Marine

The infrastructure that supports water transport in Guyana is lined along the banks of the navigable rivers, namely, the Essequibo, Demerara and Berbice rivers.

Besides the wharves and stellings that provide coastal and inland linkages, there are facilities that handle the country=s overseas shipping requirements and some coastal linkages as well. The main port of Georgetown, located at the mouth of the Demerara river, comprises several wharves, most of which are privately owned. Three berths are available for oceangoing

vessels at Linden. At the alumina plant, there is a concrete wharf while at the bauxite plant, one wharf is made of wood and the other is of wood and concrete. Calcined and metal grade bauxite are shipped from these two points. Drying and processing equipment for the Berbice operations are located at Everton on the Berbice River from where two types of bauxite, chemical and metal grades, are shipped.

Draught constraints limit the size of vessels using Georgetown=s harbour to no more than 15,000 dwt. Recent improvements in the deepwater channel in the Berbice River have made it possible for ships of up to 55,000 dwt. to dock there. Guyana=s foreign trade is handled by foreign shipping companies. The largest bulk exports are bauxite and sugar, and the largest imports are petroleum and wheat flour. Important breakbulk exports include rice and timber. Containers are used, but because they are not part of the internal transport system, they are loaded and unloaded at the ports.

Internal barge transport is important for bauxite, sugar, rice and aggregates. In the case of sugar, for example, 98 percent of the sugar export is delivered by barge to the port of Georgetown for export. Rivers are used for moving logs and account for a significant share of passengers travelling to the interior.

It is estimated that about 1,000 km of waterways are used for commerce. In addition, drainage canals are used for collecting sugar on the estates and for personal travel.

Ferry services link the primary roads in the coastal area, and Guyana with Suriname. The Government=s Transport and Harbour Department provides scheduled ferry services in the Essequibo, Demerara and Berbice rivers. Small, privately-owned river rafts supplement these services.

Table 8-12
Transport and Harbours Department Fleet of Vessels, 1998

| Name of Vessel | Service | Age (Yrs.) | Type | Capacity | | Trucks |
|---|---|---|---|---|---|---|
| | | | | Passenger | Car | |
| M.V. Makouria | G/town/V.Hoop | 36 | Pass/vehicle | 1200 | 30 | 15 |
| M.V. Malali | Parika/Adventure | 34 | | 1200 | 30 | 15 |
| M.V. Torani | Rosignol/New Amsterdam | 35 | | 1200 | 30 | 15 |
| M.V. Kimbia | G/town/North West District | 15 | Pass/Cargo | 200 | | |
| M.V. Lady | | | | Coastal 390 | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Northcote | Relief Vessel | 58 | | River 682 | | |
| M.V. Barima | Parika/Bartica | 56 | | Coastal 390<br>River 682 | | |

Source: Transport and Harbours Department

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Only two ferry services consistently show profits: the Rosignol-New Amsterdam service and the Parika-Adventure service. For the remainder, in particular for the Berbice River service and the North West service, the Government has provided a cross-subsidy funded out of the profits realised by the Harbour Branch of the T&HD.

Ferry operations have the potential to be profitable. However, capital investment to improve the physical assets is badly needed. The Harbour Branch of the Department has always shown a profit.

With the anticipated establishment of a Maritime Administration and subsequently a National Sea Ports Authority, the ferry operations must either be privatised or operated as a commercially viable autonomous agency. While some increases in rates may accompany privatisation, it is anticipated that the quality and capacity of the service would be improved. Ultimately, key ferry links will be replaced with bridges, starting with Rosignol-New Amsterdam. This policy on ferry services will enable profits deriving from the operations of the Harbour Branch to be invested in needed capital improvement.

The fleet of ferry vessels owned by the Transport and Harbours Department at the end of 1999 comprised nine motor vessels, six of which ranged in age from 15 to 55 years. Indeed, two of the vessels were over 50 years of age, and three over 30 years, with an average age of thirty-five. Perhaps not surprisingly, they are in almost continuous need of repair.

## II. Policies of the Sector[1]

### A. Roads

1. Design and Construction

The development of policy on the design and construction of public roads may be best understood by a study of the execution of road projects from the 1950s onwards. The modern approach to highway engineering in Guyana began in the 1950s with the establishment of the Roads Division, the grant of scholarships to Guyanese to study civil engineering at universities in the UK, and the sending of Guyanese civil engineers to do post-graduate studies and attachments in highway engineering in North America and the UK.

A significant step forward was taken in 1965 when the Ministry of Works and Hydraulics executed the reconstruction of the East Coast Demerara Road between Mahaica and Mahaicony by force account, using a fleet of new construction equipment procured through USAID. This

[1] This section does not include any discussion of the marine sub-sector.

project involved new road designs using stabilised sand bases, and employed highly mechanised construction methods. It established new and higher standards in quality and quantity of output for road construction in Guyana. This was followed by the reconstruction of the road between Mahaicony and Rosignol by force account in 1966-68 and by the construction of the Atkinson Field-Mackenzie (now Soesdyke-Linden) Highway in 1966-68, by a contractor from the USA. This road-building momentum lasted until 1983, after which there was a lull in road construction for 6 years. (See Table 8-13).

The Roads Division was restructured and moved into a new office building in 1966. The Division was divided into sections dealing with traffic and planning, location and geometric design, structures, and construction and maintenance. At the head of each section was a specialist engineer, whose job holder specification required post-graduate studies. With this new organizational structure, engineers were given an incentive to specialise in the various aspects of highway and bridge engineering, and in the period 1965-80, the Roads Division developed a tremendous capability to design and construct highways and bridges, both on the coast and in the hinterland.

In this period, the bases of the paved roads were constructed with sand-clay mixtures and sand or sand-clay mixtures with additives of cement or asphalt. The expertise of the Roads Division was recognised and respected, and in the study done by Parsons, Brinckerhoff, Quade and Douglas in 1970 entitled "Highway Approaches to Georgetown and New Amsterdam - Development Plans," the cost of the projects was estimated using a contractor and by force account, with the cost being lower by force account. Another significant achievement by force account was the construction of the DHB.

In the 1980s, employees in the Ministry of Works engaged in road and bridge construction were reorganised into two construction companies, Guybridge Civil Engineering Company Limited and Hinterland Road Construction Company Limited, while those engaged in the design of roads and bridges were reorganised into a consulting company called Ayanganna Consultants Limited. The major shares in these companies were held by a holding company, Construction Management Combine Limited. This was a private company where the State owned practically all the shares. In the 1980s there was little investment in roads and bridges, and these companies saw a marked decline in activities, with consequent loss of personnel. In 1990, Construction Management Combine Limited, Guybridge Civil Engineering Company Limited and Hinterland Road Construction Company Limited were merged to form General Construction Company Limited, which is still an operating company today. Ayanganna Consultants Limited still exists legally, but is no longer an operating company. With the resumption of investment in roads following the Economic Recovery Programme, there was a move away from constructing roads by force account or State-owned companies.

The first major road project in the new road investment programme was the Mabura - Lethem Road Project, which was the design and construction of a laterite-surfaced road with modern highway geometry between Mabura and Lethem and a ferry for vehicles across the Essequibo River at Kurupukari. The Project was to be executed by contract in two phases, with the first phase being the design and construction of the road between Kurupukari and Annai and the ferry. The contractor was Paranapanema. Phase 1 was financed by a loan from Banco do

Brasil and was executed in 1990-91. The execution of Phase 2 was frustrated by the lack of acceptable finance.

Tenders were also invited from private companies in Guyana, CARICOM and internationally for road projects, which were financed by multilateral development banks. The first major road project under this arrangement was the Essequibo Coast Road Rehabilitation Project (ECRRP), where the contractor selected was Paranapanema, who was the lowest responsive bidder. The lowest bidder was a contractor from a CARICOM country whose bid was deemed non-responsive, since the contractor did not have a track record of managing projects the size of ECRRP. Guyanese and CARICOM contractors then expressed their dissatisfaction with road projects in Guyana being of a size which ruled them out of the competition.

The next large road project was the Main Road Rehabilitation Programme (MRRP), which involved the rehabilitation of the East Bank Demerara (EBD) Road, the East Coast Demerara (ECD) Road and the West Coast Berbice (WCB) Road. This programme was divided into 3 projects called

Lots 1, 2, 3, following discussion between the Government and IDB. Lot 1 involved the rehabilitation of the EBD Road, Lot 2 the rehabilitation of the ECD Road up to Mahaica, and Lot 3 the rehabilitation of the ECD Road from Mahaica to Abary Bridge and the WCB Road. This subdivision of the MRRP enabled Guyanese and CARICOM contractors to be eligible for tendering and Lots 1 and 2 were awarded to CARICOM contractors. The fact that Guyanese contractors have not been able to win any of these contracts has continued to be a subject for adverse comment by these contractors. Given that the present policy is to award road construction contracts on a competitive basis on an open market, measures would have to be taken to develop Guyanese road contractors to the point where they can effectively compete on that market. At present Lot 1 has been completed, Lot 2 is under construction and Lot 3 is at the planning stage.

In order to reconstruct the ECD Road it was necessary to construct a road on the railway embankment which runs parallel with it. This was due to the volume of traffic on the ECD Road, some of which had to be diverted to the new road called AThe Embankment.≅ However, problems emerged. Traffic on “The Embankment” is restricted to a westbound direction, and at most intersections with access roads, humps were constructed across it, while on the reconstructed stretches of the ECD Road, no humps are placed across the carriageway, and traffic is allowed to move in both directions. The existence of humps across “The Embankment” resulted in significant diversion of westbound traffic back from there to the ECD Road, since many motorists dislike driving over humps. As a result, the humps were removed in September 1999, and from November 1999, it is planned to allow traffic to flow in both directions on “The Embankment”. At present, this road has two lanes and extends from Sheriff Street to Coldingen. When completed, it will extend to Enmore.

Following the MRRP is another IDB-financed project, MRRP Phase 11 - Bridge Rehabilitation. This involves the reconstruction of many of the bridges on the EBD, ECD and WCB Roads, including new bridges across the Mahaica and Mahaicony Rivers. The design for

the bridges has been prepared by a consultant from the USA and involves the transfer of technology to Guyana, in that the superstructures involve the use of pre-cast, pre-stressed concrete slabs. Traditionally, the superstructures of small highway bridges in Guyana were constructed with greenheart or cast *in situ* with reinforced concrete, but there are significant disadvantages to using these materials. Pre-cast, pre-stressed concrete slabs were used in the designs of the new Mahaica and Mahaicony bridges, but since these would require supports at 40ft. intervals and would restrict the size of vessels which could pass under the bridges, the designs have not been accepted.

2. Maintenance

With the reorganisation of the Roads Division in 1966 and the establishment of the specialised sections responsible for construction and maintenance, a deliberate policy towards improvement of the road system developed, and marked progress on the improvement of the coastal road network took place. With the assistance of USAID, several roads were constructed or reconstructed, as shown in Table 8-13.

Two new bridges were opened to traffic in 1978, namely, the modern high-level concrete bridge across the Canje River and the floating bridge across the Demerara River. So far the Government has taken the sole responsibility for financing the construction of roads and bridges by means of loans, but changes in that policy are proposed in this Strategy.

In the 1996 National Budget, a step was taken toward substantial increases in the collection of fees from vehicle ownership and licensing, in recognition of the need to have more funds available for road construction and maintenance.

3. Public Transport

Before 1970, transportation of passengers by road was done by private operators of hire cars, taxis, and buses. Private individuals and private companies provided bus services.

In 1970 Guyana Transport Services Ltd. (GTSL) was established. The Government was the majority shareholder and the Amalgamated Transport and General Workers' Union the minority shareholder. Services of the private bus operators were allowed only in the area of Canal No. 1 and Canal No. 2 Polders, the Essequibo Coast and Islands, and in Georgetown and Linden.

In 1977, with the acquisition of the assets of the Motor Transport Services Limited (a bus company providing services to the Georgetown urban area) and of Mackenzie Transport Services, the GTSL was able to extend its services to all coastal routes, including Linden, with the exception of the Essequibo Coast and Islands. By 1988 the services were significantly reduced, due to the company=s inability to maintain an adequate fleet as a result of the nationwide insufficiency of foreign exchange at the centrally prescribed rate of exchange.

The continued poor performance of the bus company prompted the Government to change its policy. Steps were taken to ensure the availability of adequate transport for public use. In 1982, the operation of privately-owned minibuses was permitted to complement the

services provided by GTSL. To encourage this development, customs duty on minibuses was waived, and this was followed by the importation of minibuses and their introduction into the public transport system. Later, customs duty was waived on the importation of buses with up to 25 seats and then up to 45 seats. Eventually, GTSL stopped providing transport services and at present public bus transport is provided entirely by privately-owned vehicles.

Public transport, however, has been characterised by an alarming rate of accidents, mainly involving minibuses.

Table 8-13
Roads Constructed/Reconstructed, 1965 - 1991

| Year of completition | Road | Length (miles) | Surface |
|---|---|---|---|
| 1967 | Mahaica Mahaicony<br>Adventure - Anna Regina | 10.50<br>14.00 | Asphaltic concrete<br>Asphaltic concrete & DBST |
| 1968 | Mahaicony - Blairmont<br>Soesdyke/Linden | 31.00<br>37.50 | Asphaltic concrete<br>Asphaltic concrete |
| 1969 | Mocha | 2.10 | DBST |
| 1970 | Black Bush Polder | 22.0 | Sand asphalt |
| 1971 | New Amsterdam - Crabwood Creek | 50.0 | Sand asphalt |
| 1972 | New Amsterdam - Everton<br>Uitvlugt - Parika<br>Carifesta Avenue | 3.50<br>9.0<br>1.0 | DBST<br>Asphaltic concrete<br>Asphaltic concrete |
| 1973 | Blairmont - Ithaca<br>Cane Grove Branch Road<br>Burma Road<br>Main St. New Amsterdam | 2.50<br>6.0<br>4.50<br>2.0 | DBST<br>DBST<br>DBST<br>Asphaltic concrete |
| 1974 | Homestretch Avenue<br>Young Street & Camp Road<br>Mahaicony Branch Road | 100.0<br>0.50<br>5.50 | Asphaltic concrete<br>Asphaltic concrete<br>DBST |
| 1975 | Parika Hubu | 5.0 | DBST |
| 1976 | East Canje<br>Belu Clay Brick | 2.50<br>2.0 | Asphaltic concrete<br>Asphaltic concrete |
| 1977 | West Canje | 3.50 | DBST |
| 1978 | Upper Mazaruni<br>Vreed-en-Hoop - Patentia<br>Vreed-en-Hoop - Stewartville<br>Canal No. 2 | 88.0<br>8.80<br>11.10<br>7.0 | Laterite<br>Asphaltic concrete<br>Asphaltic concrete<br>Asphaltic concrete |
| 1979 | Canal No. 1<br>East Coast Highway<br>Georgetown roads<br>Wismar – Mabura | 7.0<br>5.40<br>0.80<br>70.0 | Asphaltic concrete<br>Asphaltic concrete<br>Asphaltic concrete<br>Laterite |
| 1983 | Mon Repos Branch Road<br>East Bank Berbice | 2.0<br>13.50 | Asphaltic concrete<br>DBST |

| | | | |
|---|---|---|---|
| 1991 | Lethem – Kurupakari | 130.0 | Laterite |

Note: DBST = double bituminous surface treatment

### B. Air

There is no approved Air Transport Policy for Guyana. Although the Civil Aviation Act was passed on 15 December 1996, the UK Colonial Air Navigation Order (1961) still administers Guyana's air transport sector, since new Air Navigation Regulations have not been made under the local Act.

The Cheddi Jagan International Airport Act governs the operations at that airport. Currently, air transport and civil aviation matters are examined by the Civil Aviation Department and/or the Air Transport Advisory Board. Recommendations are submitted to the Minister of Transport and Hydraulics for action.

A draft National Air Transport Policy was prepared five years ago but needs to be updated to take into account the policy guidelines in this National Development Strategy.

As a matter of urgency, the Air Navigation Regulations need to be made under the Act.

## III. Issues and Constraints

### A. Roads

1. Issues

Some major issues in the road transportation subsector are:

a. The area between Mahaica, Parika and Timehri is developing as a conurbation centred on Georgetown,with significant flows of commuter traffic. There is need to supply enough road space to accommodate the sharp peaks in the traffic in the morning and afternoon, so that commuter time may be reduced to acceptable durations.

b. There is a conflict between vehicles and vessels for the use the space where the DHB intersects the shipping channel at high tide, which is when ocean-going vessels move along the Demerara River. Closing the DHB to vehicles during the rush hour is unacceptable.

c. The time taken waiting to cross the Berbice River at New Amsterdam is too long and the priority system results in annoyance on the part of those not eligible for priority passes.

d. The road between Linden and Mabura is dusty and road users suffer much discomfort.

e. The hinterland east-west road between Bartica, Linden and Kwakwani is not adequately maintained. Travel on it is rough, uncomfortable and difficult.

f. The geometry of the road between Mabura and Kurupukari and the design of the bridges do not meet modern highway standards.

g. The pontoon ferry at Kurupukari has limited capacity, and waiting time is long if the number of vehicles arriving at any time exceeds the ferry capacity.

h. The road between Annai and Good Hope is rough and stretches are subject to flooding and erosion in the rainy season.

i. Vehicles using the roads in the South Rupununi Savannahs cross the creeks by fording. However, rainstorms cause the water in the creeks to rise significantly and prevent fording.

j. There are insufficient all-weather access roads connecting mining, forest and agriculture areas in the hinterland to the Georgetown - Lethem Road.

k. There are not enough disciplined forces to patrol the borders of Guyana and reliance has to be placed on development of the civilian population near the borders. Access to such areas by all-weather roads is therefore vital. Such roads would also enable surplus agricultural products produced in border regions to be sold in markets in urban centres.

l. There is an overloading of axles on the main road network.

m. Vehicles with containers 40 ft. long exceed the legal limits of vehicle size. A significant number of 45 ft.-long containers are also in use.

n. Gross weights of a significant number of large vehicles exceed the design live loads of bridges, but to place weight restrictions on vehicles crossing major bridges would increase the cost of transportation of goods and require significant police resources to enforce.

o. The number of accidents on the roads, fatal and non-fatal, is unacceptably high.

p. There is inadequate maintenance of the road network.

q. There is encroachment on road reserves; moreover, reserves are not legally defined for roads in hinterland areas.

r. There is need for revision of the laws connected with roads to reflect the change from the imperial to the metric system of measurement.

s. There is need to identify those roads whose main function is national mobility, and which therefore comprise a national highway system, and to establish links between that system and the national highway systems of Brazil and Venezuela.

t. In case of a disaster caused by the flooding of Georgetown by a tsunami, there is

inadequate road capacity between Georgetown and Timehri to enable the rapid transport of persons from Georgetown and its environs to higher ground.

u. Improved road construction techniques need to be developed and Guyanese contractors trained in their use.

2. Constraints

Constraints include the following:

a. Limited institutional capacity.

b. Inadequate financial resources from general tax revenues.

c. Lack of a sufficient number of experienced road contractors in Guyana to provide road construction and maintenance services on a significant scale and on a competitive basis, under contract with road authorities.

d. Lack of sufficient cost recovery mechanisms in the sector to finance road construction and maintenance activities.

e. Lack of contact between the highway authorities of Guyana, Suriname, Brazil and Venezuela to promote development of the highway system across these countries.

**B. Air**

1. Issues

One of the most significant characteristics of the air transport sector is the marked absence of up-to-date Civil Aviation Legislation. This, among other issues, determines the role and scope of the sector to realise its potential in the national development effort. More specifically, the issues facing the air transport sector are outlined below:

a. Civil Aviation in Guyana is still being administered under the United Kingdom Air Navigation Order of 1961. This Order does not acknowledge the evolving changes in the aviation environment internationally and locally.

b. The public service bureaucracy impedes the operations of Civil Aviation as it relates to the decision-making and implementation process for air transport operations and licensing.

c. The Government=s financial and procurement systems restrict the efficient functioning of airports required to provide services, facilities, and air navigation systems on a 24-hour basis.

d. International air connections remain limited, in respect of both types of aircraft and frequency of flights, and too many international flights have to stop in neighbouring countries before reaching their final destinations. In this regard, regulations for international travel are inappropriate from the viewpoint of enhancing fair competition among airlines and promoting the protection of passengers.

e. With the privatisation of Guyana Airways Corporation, the way is open for restrictions on privately-owned companies to be dismantled, encouraging wider operations.

f. There is need for reconciliation between national legislation and internationally accepted rules, regulations, and procedures applicable to international civil aviation, and for ratification of major international conventions on civil aviation.

g. There is need to establish a coordinated airports and air navigation plan to provide for the rehabilitation of interior airfields, foster the development of national air navigation systems in a cohesive way, and generally improve the airport and navigation facilities throughout the country.

h. Full and effective participation of the Civil Aviation Authority should be ensured at international fora.

i. There is a shortage of opportunities and facilities for development of personnel employed within the sector.

j. There is a need to establish an effective and fully-equipped Search and Rescue Unit within the air transport sector to provide emergency services.

2. Constraints

The following are constraints in air transport:

a. Dependence on budgetary allocations by the Government is not conducive to the development of the sub-sector and to its adjustment to rapid changes in civil aviation.

b. There is a lack of established policies and regulations to govern the sector.

c. Navigational aids and facilities for airport services are very limited.

d. No Air Services Agreements exist with most other countries, and existing Agreements need to be regularised.

e. The limited capacity and substandard quality of airfields in the interior and on the coast limit the type of aircraft operations possible.

f. The Civil Aviation Department has inadequate resources to carry out rehabilitation and construction of interior airfields.

g. The operation of commercial air services by the GDF provides unfair competition with all other operators.

h. The limitation on approval of helicopter operations by privately-owned companies restricts movement in and out of the hinterland and reduces the efficiency of search and rescue operations.

i. Runway length limitations at Cheddi Jagan International Airport hamper its use for international flights.

j. Physical facilities at Ogle Aerodrome, including taxiways, runway, approach and take-off clearways, are substandard.

## C. Marine

1. Issues

There are a number of significant issues which influence the scope and quality of the operations in the maritime transport sub-sector:

a. The widespread decentralisation of economic activities and the corresponding development of the interior regions of the country, signal a greater demand for water transport. This in itself reflects the historically established fact that for the movement of bulky, low-valued goods over great distances, water transport is the cheapest (and perhaps most efficient) mode of transport, particularly where infrastructure development is not well-advanced.

b. There has been a shift in emphasis from the Demerara transshipment station to the Berbice River Deep Water facility which was created by the Aroaima Bauxite Company to facilitate the entry and exit of Panamax size ships, thereby allowing for the transshipment of great quantities of bauxite. This no doubt sends a signal as regards greater consideration for the creation of a full service deep water facility to cater for both imported and exported cargo.

c. The selling prices for quarry products and lumber for use in the urban centers, for road construction and in industry, are greatly increased by the cost of transportation. This sometimes leads to the argument that it might be cheaper to import some of these products as against relying on indigenous sources of supply.

d. In an environment where speedy arrival is preferred, often at the expense of safety, one solution might be to reduce distances in terms of nautical miles by establishing berthing facilities at Supenaam and Morshee. For example, the establishment of a wharf at Supenaam would allow for a faster turn around of the Transport and Harbours Department vessel, permitting as many as three return trips from Parika to Supenaam daily, instead of the present one return trip per day to Adventure.

e. The demand for a reliable and efficient water transport service to the outlying areas of Guyana continues to put a strain on the aging fleet of vessels operated by the Transport and Harbours Department.

f. The passage of a new Merchant Shipping Act toward the end of 1998 offers new challenges to the Government to respond to the myriad legal and institutional changes required for a revitalised maritime sector capable of responding to prescribed quality standards and quality assurances.

g. The absence of a functioning coast station impedes the process of effective maritime communication, stultifies search and rescue operations, limits or constrains the operations of the Coast Guard as it relates to surveillance, and encourages piracy, vandalism of navigational aids, drug operations, fish poaching and the evasion of customs duties.

2. Constraints

Many internal and external constraints influence the general performance of the maritime transport sector. Some of these constraints are as follows:

a. Nonexistence of a buoy tender makes it very difficult to position and repair aids to navigation.

b. The Georgetown Harbour has a plethora of wrecks which pose a hazard to effective navigation. Unless this situation is addressed as a matter of urgency, the Harbour could eventually be declared unsafe for navigation. Consequently, there would be negative effects not only at the macro level of the society but at the micro level as well, since an increase in freight rate affects everyone.

c. There are inadequate financial resources to acquire the equipment necessary to boost or maintain an efficient and reliable maritime transport service.

d. The Transport and Harbours Department lacks the requisite autonomy to set realistic fares and tariffs concerning the facilitation of commercially viable port and ferry services.

e. Weak institutional arrangements in the Department and poor financial remuneration for services rendered result in a lack of commitment and a high attrition rate among staff.

f. Maintenance costs to keep pilot and ferry vessels in service are high because of the relatively old age of the vessels.

g. At present the ferries, with their inherent subsidies, are economically unsustainable.

# IV. Sectoral Objectives

## A. Road

The overall objective of the sector is to construct a national road transport network which would provide the basis for the economic development of the entire country, and assist in the attainment of its social integration.

In particular, it would:-

1. provide adequate access to all the regions in Guyana to enhance their social and economic development;

2. assist in the occupation of as much of the country as possible for security reasons;

3. establish road linkages with Brazil and Venezuela, and through these countries with the rest of South and Central America, and North America in order to facilitate trade.

## B. Air

The general objectives of the air transport sector are (1) to improve the standard of living and the quality of life of Guyanese by providing air access to different parts of the world and to different areas in Guyana, (2) to enhance penetration into the country's interior, and (3) to provide facilities to enable easy ingress to, and egress from, the interior in times of emergency, and (4) to assist the tourism industry.

## C. Marine

The objectives of the marine sector are:

1. To promote reliable and efficient maritime transport in the coastal and riverain areas of the country, particularly as it relates to the major sectors of the economy.

2. To ensure that the facilities and services that are available at the ports and harbours of the country optimise the export and import of all types of commodities from and into Guyana.

# V. The Strategy

## A. Road

1. <u>Development of the Road Infrastructure</u>

a. A new highway between Georgetown and Soesdyke will be constructed.

b. The road connecting Georgetown-Soesdyke-Linden-Mabura-Kurupukari, Annai-Good Hope and Lethem will be the north-south national highway.

c. The road between Linden and Lethem will be improved to the same standard as the highway between Georgetown and Linden.

d. The ferry at Kurupukari, on the Essequibo River, will be replaced by a bridge.

e. The carriageway on the East Bank Demerara road between La Penitence and Peter's Hall will be widened to accommodate four lanes of traffic.

f. The east-west national highway, that is the road between Georgetown and Moleson Creek, will be much improved. In particular, the pavement and the bridges between Sheriff Street and Enmore will be strengthened to the design standards of a national highway system, and a new highway will be constructed between Enmore and the Berbice River Bridge.

g. A two-lane bridge across the Demerara River, adjacent to the Demerara Harbour Bridge, with a vertical clearance over the navigational channel which would enable ocean going vessels to pass under the bridge. This new bridge will be connected to the East Bank Demerara Highway and the West Bank Demerara Road. It will replace the Demerara Harbour Bridge which will then be dismantled and its components used to construct bridges elsewhere.

h. A two-lane bridge will be constructed across the Berbice River, with a vertical clearance over the navigational channel which would enable vessels using the river to pass under the bridge.

i. The road connecting Kwakwani, Ituni, Linden, Rockstone, Anarika, Allsopp Point and Bartica will be improved to modern standards, with a paved surface. It will cross the Essequibo River by a bridge in the vicinity of Kokerite Island.

j. Bridges will be constructed across the creeks on the road from Lethem to Marudi.

k. A paved two-lane road will be constructed from Parika to Makouria and Anarika, and between Patentia and Kamuni.

l. A two-lane laterite road will be constructed from Konawaruk southwards to the Siparuni River, to meet the road between Kurupukari and Annai, and with a branch to Orinduik and other villages in the Pakaraima Mountains.

m. The UMDA Road between Itaballi and Kurupung will be rehabilitated and completed.

n. A two-lane road will be built between Itaballi and Eteringbang, along with a bridge across the Cuyuni River to link the Guyana road system with that of Venezuela.

o. A two-lane branch road from the Itaballi-Eteringbang road to Towakaima and Matthews Ridge, and a two-lane road from Port Kaituma to Yarakita will be constructed.

p. A two-lane road will be constructed from Supenaam to Towaikaima, with branch roads to Santa Rosa and Koriabo.

q. A bridge will be built across the Takutu River at Lethem to connect the Guyana road system to that of Brazil.

r. A two-lane road from Kwakwani eastwards to Epira and Orealla and a two-lane road northwards from Orealla to Moleson Creek will be put in place.

s. A two-lane road from Marudi to Camp Jaguar and a two-lane road from Marudi to Oronoque Camp will be constructed.

t. A two-lane road from Orealla to Camp Jaguar will be built.

u. A two-lane road will be constructed from Annai eastwards to Apoteri to meet the road from Orealla to Camp Jaguar at Lanaballi River.

v. A two-lane road from Port Kaituma to Yarakita will be built.

w. The capacity of the roads and bridges between Georgetown and Parika, Georgetown and Timehri, and Georgetown and Mahaica will be increased to reduce commuting time. These roads, when established, will provide a network which traverses the length and breadth of Guyana. They will connect all the Regions of the country, give access to all its economic zones and link the country with all its neighbours. They will enable easy movement within the Regions. The network will also permit Guyanese to travel by road to all parts of South America, Central America and North America.

x. An autonomous highway and bridge agency will be established, including, *inter alia*, a highway division, a bridge division, a geotechnical services unit and an environmental management unit. This agency will be staffed with academically qualified and experienced engineers. The highway division will also have a small construction unit to enable it to develop new road construction techniques and to train Guyanese contractors in their use.

y. Contracting firms owned by Guyanese nationals will be assisted through the facilitation of credit, the establishment of machinery pools, and the provision of relevant training in the undertaking of large scale road construction projects, to enable them to compete with foreign contractors.

z. Modern standards for the construction, operation and maintenance of the national highway system will be established.

aa. Funds for road maintenance are currently derived from general revenue and foreign donors loans or grants. An appropriate schedule of user charges will be formulated in order to generate revenues to replace or supplement transfers from the Central Government for road maintenance.

bb. An annual road maintenance budget will be prepared in which the roadways that should be maintained are identified and prioritized.

cc. A separate road maintenance fund will be established, with decision power on its allocations vested in a Board that includes representatives of the Ministry of Finance, the Ministry of Public Works and Communications, the Ministry of Local Government, RDCs, NDCs, and the Private Sector Commission.

dd. Tolls will be imposed for the use of new major bridges and new roads.

ee. Higher taxes will be required from vehicle owners. Indeed, the entire vehicle tax system will be periodically updated.

ff. The regulatory and operational functions of government will be separated.

gg. The policy of driving on the left hand side of the road will be reviewed *pari passu* with the establishment of road links with Venezuela and Brazil.

hh. Plans will be developed for a new bridge across the Demerara River, to be carried out through a build, operate and transfer ownership (BOT) arrangement. The Demerara Harbour Bridge has been rehabilitated with funding from EU. This work will extend the life of the bridge up to 2012. Work on plans for a new high level bridge will be initiated immediately, so that it may become operational before 2012. It may turn out that the only practicable way to carry out the construction, operation and maintenance of the new bridge is by a BOT arrangement, or by a build, operate, own (BOO) arrangement.

ii. All road-related projects will conform to the findings of environmental impact assessments.

jj. There is a critical shortage of skilled staff to discharge the functions and responsibilities of the RA+D. A new autonomous public works agency with the capacity to pay attractive salaries will be established, and would help in this regard.

kk. In addition to attractive remuneration and adequate incentive and fringe benefits packages, and the training and upgrading of the skills of the staff, prospects for long-term career development in the context of the strategies adumbrated here will also be stressed.

ll. Training in the Faculty of Technology at the University of Guyana will be expanded and upgraded.

mm. Weight controls will be enforced on all roads, along with increased frequency of inspection for weight and for observance of safety regulations. Penalties will be increased for unsafe operations of minibuses, violations of weight controls, and encroachment on road reserves.

nn. Guyana can ill afford the wanton loss of lives on our roads resulting from minibus

accidents. Safety measures will therefore be established and enforced to lower the accident rate. Fines for the violation of transport safety regulations will be increased and the random inspection of operating minibuses will be carried out with greater frequency.

oo. Stopping areas for minibuses at which public transport will be required to load and unload passengers will be identified in the towns, rural areas and the hinterlands.

2. Investment Strategies

a. To date, investment in the road subsector has been largely left to the Government. However, the magnitude of the investment needed in the road transport subsector if this Strategy is to be implemented, is overwhelming. Due to limited resources, the Government is unable to undertake such investment. There is therefore scope from both local and foreign financiers, who will be encouraged by the provision of adequate incentives, to supplement the Government's effort through BOT and BOO arrangements for the construction, operation and maintenance of new transport infrastructure. The arrangements will allow for private investors to build, operate and maintain infrastructural facilities, to recoup their investment and make reasonable profits.

b. In developing the hinterland, emphasis will be placed on core investors. If the hinterland is developed by small investors only, it would be difficult for such a strategy to produce arterial roads. Core investors would be those firms investing in large mining, forestry, agricultural or hydro-power projects in areas which require significant expenditure on roads to connect the project area to the national road system. The traffic on such roads would be traffic into and out of the project area generated by the mining, forestry or agricultural operations of the project. Incentives will be given to this type of investor if the roads that are built conform to the national road plan, and are consonant with the national engineering specifications.

**B. Air**

1. The physical facilities at Cheddi Jagan International Airport, Timehri including runways, taxiways, aprons, communications and navigational aids, and the air navigation system at airfields throughout the country, will be improved.

2. A feasibility study to lengthen the runway at Cheddi Jagan International Airport, Timehri, will be immediately undertaken.

3. An autonomous Airports Authority for the management of the international airport at Timehri and other government airports will be established.

4. An autonomous Civil Aviation Authority for the regulation of the Civil Aviation sector will be established.

5. The 1996 Civil Aviation Act will be updated, and concomitant Air Navigation Regulations will be prepared and implemented.

6. Wherever possible, Air Services Agreements will be concluded with all countries with which Guyana wishes to exchange air services.

7. Where such Agreements exist but do not meet international requirements, they will be renegotiated.

8. Interior and coastal airfields will be rehabilitated and upgraded in accordance with a plan to be formulated by the government and the private sector.

9. The use of military aircraft for civil commercial operations will be prohibited.

10. The existing limitations on helicopter operations by privately owned companies will be removed, subject to the establishment of regulatory standards by the Civil Aviation Authority.

11. Ogle Aerodrome will be developed into a Municipal and Regional Airport of Entry, and will be privatised.

12. The development and expansion of privately owned airlines will be promoted and encouraged by a system of incentives.

13. The frequency of international air services at both Timehri and Ogle will be increased by the upgrading of services and facilities to promote such operations.

14. Systems will be put in place to improve the country's search and rescue capacity. This will entail close cooperation between the private and public sectors.

15. All restrictions on privately owned Guyanese airlines will be eliminated. Such airlines will, of course, be subject to the country's air operation laws and regulatory procedures.

### C. Marine

1. All wrecks which affect navigation and the smooth flow of traffic in and out of the harbours will be removed.

2. Regulations will be established and implemented to ensure a high degree of safety standards on board all the vessels which ply the coastal waters of Guyana and those engaged in regional and international shipping.

3. Better dredging schedules will be organised and implemented to keep open the access channels to Guyana's ports of entry and exit.

4. Wharves and berths in the major ports will be upgraded so that they reflect standards in keeping with prescribed harbour and port regulations.

5. All aids to navigation in the access channels in the major rivers of Guyana will be improved.

6. All coastal and foreign-going vessels will, as a matter of course, be issued with seaworthy certificates by duly registered dockyards from the national grid as well as internationally recognised certification bodies.

7. Conditions will be put in place to ensure a reliable twenty-four hour per day pilot service in the ports and harbours of the Country.

8. It will be ensured that bridges be designed so as not to restrict the normal size of barges which enter our rivers and travel to their upper reaches.

9. A comprehensive study will be conducted of the waterways in Guyana to ascertain whether the establishment of canal linkages between various rivers would be feasible, both physically and economically.

10. A canal will be dug to link the Demerara and the Essequibo Rivers in order to reduce the distance, time and costs of transportation between Essequibo and Demerara. This canal will significantly decrease the cost of transporting quarry products and lumber from the Mazaruni, Cuyuni, and Essequibo Rivers to other parts of the country.

11. A Maritime Administration will be established as a matter of urgency. This would allow for Port State and Flag State Control regulations to be administered and enforced. This is of particular importance since the State is now party to the Caribbean Memorandum of Understanding on Port State Control.

12. The Harbours Division will be separated from the Ferries Division to facilitate a greater concentration on the development of the port. The new entity will be established as the National Ports Authority. All navigable waters, inclusive of the economic zone, which are under the jurisdiction of Guyana, will fall under the Harbours/Port Authority in terms of regulations.

13. Given the fact that Guyana has acceded to a significant number of key International Maritime Conventions, provision will be made for these to be incorporated into comprehensive new national legislation to guarantee full compliance.

14. As a flag State, Guyana will ensure that the requisite provisions are in place to provide continuous training for its seafarers, at least at the deck ratings level. With the enforcement of the International Regulations pertaining to Standards of Training and Certification of Watchkeeping Officers (STCW) 1995, Guyanese seafarers are finding it extremely difficult to keep their places on board foreign vessels because they are not certified in keeping with the STCW 95 Convention.

15. The Coast Station will be upgraded to offer an effective service to the maritime community. This would include 24 hours per day VHF and HF services to facilitate, *inter alia,* Search and Rescue Operations. At the present time this facility, for which the Guyana Telephone and Telegraph Company is responsible, is non-functional.

16. It is projected that the development of road links between Brazil and Guyana, and Guyana and Venezuela, would give Guyana a strategic advantage, if such a facility was utilised as a hub for cargo destined for areas in these two neighboring States where easy access by sea is not practicable. A deep water facility will therefore be established on the West Bank of the Demerara River within two miles of the Transport and Harbours Department Stelling at Vreed-en-Hoop. This area is easily accessible from the main ships' channel, and could be easily connected to the West Demerara Highway.

17. The Berbice River deep water facility will continue to be dredged and maintained.

18. Consideration will be given to the use of small gas turbine shallow displacement vessels to gain access to the interior regions of the country thereby enhancing eco-tourism development.

19. Standards will be established for horizontal and vertical clearances under new bridges across rivers such as the Mahaica and Mahaicony. The horizontal clearance will be 120 feet and the vertical clearance 7 feet, above mean high water level.

## VI. Legislative Changes[2]

### A. Roads

The legal framework under which the Roads Administration Division manages the public road system is Chapter 51:01 of the Laws of Guyana. This law will be amended to provide for the substitution of a Highway Division in an autonomous public works agency for the RAD in a Ministry. The penalties for offences pertaining to the damage or misuse of the infrastructure (roads, bridges, other structures) are ridiculously low and require updating. While putting in place routine maintenance for preserving the rehabilitated infrastructure is important, preventing wanton destruction to the structures is equally important. Prescribing appropriate penalties to offenders is therefore necessary.

New legislation will be introduced to facilitate the construction, operation and maintenance of roads and bridges by private firms for use by the public paying tolls, such as in BOT and BOO arrangements. The laws regulating the dimensions and weights of vehicles will be reviewed and revised to bring them in line with international standards. The laws will also be revised to reflect the change from the imperial to the metric system of measurement. Finally, the laws regulating the side of the road on which vehicles are driven will be reviewed when the Guyana road system is connected to those of Brazil and Venezuela.

### B. Air

The Government will implement the necessary legal changes, consistent with the general and specific objectives previously presented in this document. Air transport in Guyana is still being administered under the United Kingdom's Colonial Air Navigation Order (1961).

[2] No legislative changes are proposed for the marine sub-sector.

Modern, up to date Air Navigation Regulations will be made under the Act. These regulations will be harmonised with the existing legislation of the CARICOM Member States.

The Civil Aviation Act provides for:

1. The Civil Aviation Authority that will assume all the functions of the present Civil Aviation Department except the operation and management of Airports.

2. The Air Transport Licensing Authority that will assume all the functions of the present Air Transport Advisory Board.

3. The Airports Authority that will assume management of all government Airports and Airfields.

Provision for these three authorities has been made in the new Act. In addition, legislation will be introduced to facilitate the transfer of the management of Ogle Aerodrome from the Airports Authority to the private sector.

# VII. Preliminary Investment Programme[3]

## A. Roads

The following projects are identified for investment over the next five year period:

1. Completion of the Essequibo Coast Road Rehabilitation Project.

2. Completion of the Main Road Rehabilitation Programme Phase 1 - Timehri to Mahaica.

3. Completion of the Main Road Rehabilitation Programme Phase 11 - Bridge Rehabilitation.

4. Rehabilitation of the ECD Road from Mahaica to Abary, and the WCB Road from Abary to Blairmont.

5. Improvement of the stretches of the Linden - Lethem Road between Mabura and Kurupukari and between Annai and Lethem to modern two-lane geometric standard with laterite surface, and construction of a bridge across the Essequibo River at Kurupukari to replace the ferry.

6. Reconstruction of the East Bank Demerara Road between La Penitence and Peter's Hall as a four-lane highway.

7. Construction of a bridge across the Berbice River, with access roads.

8. Construction of a new highway between Georgetown and Soesdyke.

[3] No projects were identified for the marine sub-sector.

9. Construction of a road between Parika and Suribanna and another between Patentia and Kamuni.

10. Rehabilitation of the Corentyne Highway.

11. Paving the Linden - Mabura stretch of the Linden - Lethem Road.

12. Improvement of the road between Linden and Bartica to enable cars to travel on it, and construction of a bridge in the vicinity of Kokerite Island to replace the ferry between Suribanna and Sherima.

13. Improvement of the road between Linden and Kwakwani to enable cars to travel on it.

14. Construction of bridges over creeks on the road between Lethem and Marudi.

15. Construction of a two-lane road between Moleson Creek and Orealla.

16. Execution of a feasibility study for a high level bridge across the Demerara River to replace the DHB.

17. Improvement of the roads connecting Bartica, Mahdia and Issano.

18. Construction of a network of roads connecting the villages and towns in Regions 8 and 9.

19. Construction of a network of roads in the Intermediate savannahs.

20. Construction of a bridge over the Berbice River.

**B. Air**

The projects listed below are identified for investment over a five-year period.

Safety and security would be given priority in the following long-term programme:

1. Cheddi Jagan International Airport, Timehri -

   a. Extension of the main runway (subject to results of the feasibility study).

   b. Resurfacing of the runways.

   c. Apron Expansion.

d. Rehabilitating and improving runway approach lights.

e. Construction of a cargo complex, including freezer facilities.

f. Upgrading the crash/fire rescue service.

g. Implementing the CNS/ATM system, inclusive of equipment modernisation in the air navigation and DGPS systems.

2. Implementation of the preliminary master plan for Timehri and Ogle airports prepared under UNDP/ICAO Project (1993) updated to reflect current trends and needs.

3. Development of Ogle Municipal and Regional Airport -

a. Construction of new runway and taxiways.

b. Construction of new Terminal Building.

c. Improvement of Navigational and Telecommunication Aids.

d. Construction and Improvement of Air Traffic Control Tower.

e. Improvement of Fire Hall and CFR Equipment.

4. Upgrading and Rehabilitation of Interior and Coastal Airfields.

5. Provision of modern Search and Rescue resources to the Civil Aviation Authority.