TRANSPORT AND COMMUNICATIONS IN NAMIBIA

Prepared for the Ministry of Works,
Transport and Communications,
Republic of Namibia

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PREFACE

This report was commissioned by SIDA (Swedish International Development Authority). The report has been reviewed and approved for publication by the Ministry of Works, Transport and Communications of the Republic of Namibia. The document is meant to serve as a basis för initial policy and development planning of the transport and communications sectors.

SWECO has been responsible for preparing the report.

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EXECUTIVE SUMMARY

Introduction and Background

With improving prospects for independence for Namibia, the Swedish International Development Authority (SIDA) decided to finance technical assistance for a Study on Transport and Communications for Namibia (STCN). The purposes were, *inter alia*, (i) to survey the existing transport and communications sectors, and (ii) to analyse the present state of these sectors as a basis for the efficient operation of the two sectors, as well as (iii) identification of short-term needs, and the formulation of projects to meet these needs, suitable for presentation for donor financing. The description of the transport and communications sectors presented in this report reflect conditions at the time of the phasing out of South African rule in Namibia, and more precisely up to the end of 1989.

The Legislative Framework

The pre-independence legal framework in the transport and communications sectors comprises (i) laws of Namibian origin, (ii) South African laws, which also apply to Namibia, and (iii) South African laws, which also apply to Namibia, but with Namibian amendments. The first category is *administered* by the authorities in Namibia (the Windhoek administration), while parts of the second type of laws may be administered by Windhoek, and parts by Pretoria. The third category is essentially administered in Windhoek.

Generally, *racial clauses* in South African laws, which are valid in Namibia, no longer apply. Work is ongoing in Windhoek to reform and extend the legal framework for the transport sector, to ensure that it is comprehensive and autonomous from South Africa and its institutions at the time of independence.

The law governing, *inter alia*, the operations of the *railways* and *ports*, as well as Namib Air, the putative national carrier, is Namibian. The port of Walvis Bay, which is managed by the South African Transport Services (SATS), is excluded from the scope of this law.

The main laws pertaining to *roads* are Namibian, as are the laws in the sphere of *road traffic*. A law regarding *road safety* is, however, administered by South Africa, but will be repealed in Namibia before independence. A law governing *third party insurance*, which provides for the imposition of levies on fuel to establish the Multilateral Motor Vehicle Accidents Fund, is also administered by South Africa. This Act does not provide for autonomy, and also has the undesirable feature of recognising the so-called 'TBVC-states' as independent states. However, plans are afoot to establish a separate third party fund for Namibia. The BLS-countries have similar laws and their own funds, as well as reciprocal agreements, including with South Africa.

The main law regulating *road transportation*, belongs to the third category, and recent amendments to it ensure full autonomy. Draft legislation is, however, also being processed by the Windhoek administration for the staged replacement of the current laws for both road traffic and road transport. This proposed new law, which may be proclaimed before independence by the Administrator-General, will, *inter alia*, pave the way for deregulation of road transport and the entering into bilateral agreements for regulating international road transport. It will also cover road safety aspects, now included in South African laws.

All *civil aviation* laws are of the second type. Matters related to international affairs, the economic regulation of the subsector and aviation safety are still controlled by Pretoria, and Pretoria also provides assistance in other fields. Draft legislation is being prepared by the Windhoek administration, with a view to presenting a comprehensive set of laws to the first government of independent Namibia.

In the sphere of *maritime affairs* all laws belong to the second category and are administered by Pretoria. New — comprehensive — Namibian laws are being drafted by the Windhoek administration to be ready by independence. The new civil aviation and maritime affairs laws are based on current South African legislation, but are likely to meet the requirements of independent Namibia.

The main act governing *posts and telecommunications* belongs to the third category. It is administered by Windhoek and now also provides for an autonomous framework.

Recent Developments in Transport and Communications Policies

During the 1980s, South African policy in Namibia has shown two trends. Firstly, there has been a gradual creation of a separate Namibian administration in preparation for eventual independence. The second trend has been the initiation of moves towards deregulation in transport and communications. These latter changes mirror closely those occurring in South Africa, where the process is more advanced. During the last three years, several important acts have been promulgated by the South African parliament which aim at the *deregulation of road and rail transport in South Africa* and will pave the way for a future, partial privatisation of SATS. Similar proposals have also been made in respect of posts and telecommunications, and draft legislation to this effect has been prepared.

The South African reforms are not unique in the world. Similar moves have been *ongoing in a number of industrialised countries* and have also been promoted by the IMF and the World Bank in the third world.

In Namibia, the process was initiated by the report of the *Advisory Committee on Transport Services* (ACTS) in 1986. Most of its recommendations have already been carried through or are in the process of being implemented, although the independence process may have the effect of putting some of the proposals on ice. It was thus the ACTS which recommended the establishment of TransNamib Limited (TNL), the operator of the railway and the port of Lüderitz, along the present lines, as well as the deregulation of road transport with a 5-year period of grace. The ACTS also recommended the establishment of an autonomous legal framework for Namibia in all spheres of transport and the closure of three railway branch lines.

A *Privatisation Advisory Committee* (PAC) has furthermore been established in Namibia to examine which activities could suitably be entrusted to the private sector. So far the PAC has little to show for its efforts. A proposal for incor-

porating the Department of Posts and Telecommunications (DOPAT), as a prelude to a possible future partial privatisation, has been reviewed but was found unacceptable as DOPAT's financial position was considered inadequate. The only privatisation that the communications sector has seen so far refers to PABX equipment. In the transport sector there have been no privatisations to mention, and no further action appears to be planned before independence.

Transport and Communications Networks

Namibia has more km of road per head of population than any other country in Africa. The road network is of high quality and *well maintained*. The road infrastructure is characterised by an imbalance between the modern sector and other parts of the country, with few or no roads. Road construction in recent years has only partially rectified this situation, at least in part because of the war.

Since 1 July 1988, the Namibian railways have been run by the *National Transport Corporation* (NTC), which on 1 July, 1989 changed its name to *TransNamib Limited* (TNL). Its network consists of 2 382 route km. The main line sections rate amongst the *best maintained* track in Africa for the volumes of traffic carried. The Windhoek *workshop* is modern and well equipped, but inadequate for major repairs of wagons and coaches.

TNL owns 88 diesel electric locomotives, 1 692 goods wagons and 205 coaches. The locomotives are *old*, but well maintained, and the number *exceeds the requirements*. All wagons are in a *very good condition*. The goods wagons mainly cater for the domestic market, and are adequate for this purpose, while South African wagons dominate the interchange traffic. There have been no recent reductions in the size of the network or any major changes in the services offered, but passenger services have been curtailed somewhat.

The *port of Walvis Bay* is a well run and efficient port, that can provide all the facilities required by Namibia's foreign trade. The water depth in the port restricts the size of vessel that can use the port, but current demand does not justify larger vessels. The present *occupancy* of the berths (17%) *is very low.*

The *port of Lüderitz* is operated by TNL. It is small and underutilised, but *well run*. Facilities exist for the handling of small coastal vessels, although this will be jeopardised if *redredging* of the harbour is not carried out in the near future. Safe anchorage exists for larger vessels, which can be handled by lighterage. There are no facilities for bulk cargoes and the facilities for liquid products are inadequate. A large-scale expansion of the port in its present location is constrained by the small area of land available, but possible at other locations in the bay.

Namibia has 2 state *airports*, 13 government — owned *aerodromes* and numerous other smaller airfields. Most of the airspace falls in the Windhoek Flight Information Region. Until the end of 1989, air traffic control at some of the airports was provided by staff of the South African Air Force as an interim measure. Air navigation and communication facilities *are simple but adequate*. One exception is Windhoek Airport (formerly J.G. Strijdom Airport) where there is a need for an *instrument landing system* (ILS), in view of the expected development of international traffic after independence.

Namibia has excellent road and rail links to *South Africa*, while connections to other countries are underdeveloped and/or underutilised. A bitumen road leads to Lubango in *Angola* and from there to the deep-water port of Namibe. There are also rail services between these two cities. The road from the border to Lubango is in a poor state because of lack of maintenance and war damage. The bridge across the Cunene River has been destroyed and the temporary Bailey bridges restrict flows and, primarily, vehicle loads. There are *no customs* facilities in southern Angola.

Zambia can be reached by way of a ferry service across the Zambezi River at Sesheke and Katima Mulilo. The road between Sesheke and Livingstone is paved, but in need of repair. The road between Katima Mulilo and Rundu is partly paved and partly a gravel road in fair condition and adequate for heavy traffic provided the current intensive maintenance programme is sustained. There are *customs* facilities in Caprivi.

There are two links to *Botswana*. The route through Caprivi and to Katima Mulilo continues to Ngoma, where there are roads of good and high standard connecting up with other SADCC-countries. The other route via Gobabis, Buitepos, Mamuno, Ghanzi, Maun *cannot take heavy traffic* at present. A feasibility study has recently been completed for a road linking Sekoma (in southern Botswana), Ghanzi and Mamuno, on the border. Although finance is not in hand, the project has been accorded high priority by the Botswana government.

The backbone of the *telecoms* network consists of a microwave link connecting Windhoek with South Africa, Tsumeb and Walvis Bay. The backbone is being extended to Oshakati, by an optical fibre cable, scheduled for completion in 1990. All international traffic is routed via South Africa. The system includes some older components, e.g. exchanges, but functions well. The number of subscribers is high for African conditions, although the network mainly serves the modern sector of the country.

There are *post offices* throughout the country and a comprehensive set of services is offered. Again, services are best in the modern sector, but recent expansion has mainly been in the north.

As far as *the equipment* used in the two sectors is concerned, it seems unlikely that dependence in South Africa — in general — is a major issue. Although many items have been made there, the manufacturers are often multinational companies. Spare parts can therefore be procured from other countries. However, certain equipment has special South African design features, and spares can therefore only be obtained from other sources at a considerably higher cost.

The Department of Transport (DOT)

DOT is responsible for all the *functions* normally performed by a department or a government administration in the fields of roads, road traffic, road transport and meteorology. Furthermore, it performs vital functions in civil aviation, including airports, but its mandate and capacity in this area are limited. Maritime affairs are controlled by Pretoria.

The *establishment* is about 3 800 posts. There was only one seconded South African civil servant in mid-1989. The *vacancy* ratio was about 8% overall, but 20% for management and supervisory staff. The previous shortage of air traffic controllers had been reduced considerably by the end of

1989, but the number of other civil aviation staff is inadquate, in general. There is also a shortage of civil and mechanical engineers as well as technicians in all relevant fields. DOT has its own training programme for traffic officers, mechanics and the staff required for road construction and maintenance activities.

Appropriations from the Central Revenue Fund (CRF) of Namibia have been reduced significantly in recent years in real terms. This reflects the fact that road construction has been scaled down, but also mirrors the fiscal situation. Real expenditures on road maintenance have therefore also been reduced somewhat. Because of a lower level of activity, the present manpower shortages in the roads sub-sector are not believed to be fully as serious as borne out by official vacancy figures. After independence it will, however, be necessary to maintain the current expenditure levels to sustain morale and prevent a deterioration of the infrastructure.

After independence it will also be important to consider the restructuring and strengthening of DOT. New *directorates for civil aviation and maritime affairs* need to be established, and the *policy and planning functions* need to be strengthened. A review of the *road taxes and user charges*, which appear low for, in particular, heavy vehicles, seems to be urgent, as it could also contribute to an improvement in the fiscal situation.

The Department of Posts and Telecommunications (DOPAT)

DOPAT performs all *functions* of a fully-fledged posts and telecoms administration, but relies on its South African counterpart for dealings with multilateral bodies. It has an *establishment* of about 2 500 posts and has over the past few years significantly reduced its dependence on seconded South African staff. These mainly hold technician and electrician posts, areas where DOPAT's *staff shortages* are the most acute. DOPAT also has gaps in the manning of engineering posts. The overall vacancy level is about 15%.

DOPAT runs its own *functional training centre* for the training of technicians, electricians and post office clerks. The high level of resignations soon after course completion is ascribed to inadequate salaries. The salary and benefits structures are currently being reviewed.

DOPAT depends on the CRF for all funds and also hands over its revenues to the CRF; *consequently it does not operate on commercial principles*. The financial position has progressively improved, and revenues now exceed expenditures on a year-by-year basis. However, not all costs are accounted for as the Department of Civic Affairs and Manpower defrays the costs of buildings, including utilities, used by government departments.

Not much is known about the *operational performance* of DOPAT, but it appears to be good. Some of the equipment is old, which reflects the fact that the real value of investments has been falling in recent years. The medium to long term planning function is inadequate.

DOPAT is like all public institutions dominated by white people and the effective means of communication is Afrikaans. After independence, a major issue will be the proper framework for the operations of posts and telecoms services. It would probably facilitate the retention of skilled staff if DOPAT was converted into a *government owned corporation*. This would also probably boost efficiency, ensure that adequate investments are being made and strengthen strategic and long-term planning.

TransNamib Limited (TNL)

TNL started operations on 1 July 1988, when it assumed responsibility for the assets, which had previously been owned and operated by SATS, i.e. the railway, the port of Lüderitz, SATS road transport services in Namibia and 7 lighthouses along the coast. On that date, TNL also took over the ownership of Namib Air.

TNL is a *limited liability company*, and operates on commercial principles. All the *shares* are owned by the Windhoek administration. The board of TNL can issue new shares, but has to offer these first to the Cabinet; if it declines, the shares may be sold on the market. TNL has vast powers in respect of tariffs and the services to be supplied. The Cabinet can request TNL to continue to operate non-profitable services provided compensation is paid, but the level of compensation is in effect determined by TNL. For investments in larger works, TNL must seek approval from the Cabinet. Politicians and civil servants cannot be members of the board, but all board members can be replaced by the Cabinet at any time.

TNL has about 3 700 *employees*, or about 1 300 fewer persons than the number used by SATS before TNL take-over. This change should be viewed against the background that TNL has had to establish many new head office functions. Almost 500 SATS employees decided to return to South Africa in 1988, rather than join TNL; there are now very few seconded SATS personnel left. Also numerous SATS employees accepted early retirement and a further 433 general workers were laid off on account of completion of rehabilitation works of the main railway line. However, TNL claims that it has the staff required for the present conditions, although it is acknowledged that there are some shortages, primarily at the engineering, technician and mechanic levels. There is *no evidence of operational problems at present*. TNL has its own *training school*, and has introduced new methods to speed up the advancement of black employees.

TNL relies partly on SATS *management systems*, but is in the process of establishing its own. When this task has been accomplished, said to be scheduled for 1 April 1990, TNL will essentially become an autonomous body, independent of South Africa.

The financial statements for TNL's first financial year (covering 9 months of operation) show a profit according to conventional accounting practices. This profit is nominal, as TNL has hardly any debts to service, and depreciation charges have been based on historical values and are very low. To consider the low depreciation charges, TNL also accounts for what is called Appropriation to Reserve Fund for Replacement of Assests, and a consideration of this item results in a loss for the first financial year. TNL management states that TNL accounting practices tend to overstate the losses. This claim is doubtful; there are reasons to believe that TNL in effect is incurring *heavy financial losses*. They appear, however, to be lower than during the days of SATS operations. This is also supported by the available operational data, which suggest a better level of performance since mid-1988.

Up until 1985, SATS and South Africa bore the brunt of the losses incurred on the Namibian system. Windhoek con-

buted a smaller share. On 1 April 1985, the control of SATS assets was transferred to the Windhoek administration, although SATS were maintained on a management contract basis until the TNL take-over. During the transition phase, SATS' financial responsibilities were phased out over three years. For that reason, substantial sums of money were *transferred* from the CRF to SATS between 1 April 1985 and 1 July 1988.

TNL's financial situation gives cause for concern for the future. Cash-flow is adequate at present for covering operational costs, but there is not much surplus for investments. The reasons are essentially to be found in *low network utilisation* and, perhaps, in low tariffs and inefficiency. It will be necessary to continue to tackling TNL's financial problems after independence to ensure the long-term viability of first and foremost the railway, but also the port of Lüderitz and Namib Air.

Road Transport and Intermediaries

In 1986, Namibia had a *fleet of* about 100 000 *vehicles*. The vehicle density was about 50% higher than in Botswana and Zimbabwe. The number of heavy vehicles is also relatively large.

The economic *regulation of road transport* is strict and complicated. Draft legislation, now being processed by the DOT, is designed to deregulate road transport. The railway will, however, be given a period of grace, when it will not have to face any competition in its most important markets from *new* hauliers and/or services, according to new regulations which became effective in November 1989. It is understood that transport companies with valid permits will not see these revoked and that the grace period is envisaged to last for 5 years.

There are about 50 *bus and trucking companies*, almost all of them private. The only exceptions are the TNL road services and a municipal bus service in Windhoek. There is South African capital in this sector, but Namibian interests appear to dominate.

Customs clearance and forwarding agents, and travel bureaus are privately owned and not subject to any specific regulations. The markets are said to be competitive. The largest firm is controlled by South African interests, but there is also both overseas and local capital in the sector.

Transport Demand

At present, the *railway* carries about 2.3 million tonnes p.a., mostly fuel from Walvis Bay, containers, coal, coke, cement, maize and general merchandise from South Africa, and mineral exports through Walvis Bay and to South Africa. Major local transports include pyrites, and copper and lead concentrates.

The *traffic through Walvis Bay* is believed to comprise about 0.45 million tonnes of fuel products, 0.4 million tonnes of salt, about 150 ktonnes of mineral and metals exports and some 0.2-0.3 million tonnes of other goods. Traffic through Lüderitz is small, less than 15 ktonnes p.a. Long-distance road transport amounts to perhaps 1.5 million tonnes a year.

Namibia's *total international trade*, excluding the Walvis Bay enclave, is of the order of 2.3 million tonnes a year, of which 1.5 million tonnes are carried by rail and 0.7 million tonnes by road. Air freight is insignificant from a volume point of view. The traffic to and from South Africa makes up about 90% of the total trade, in terms of volume.

Future Transport Demand; International Traffic

Given the present circumstances, it is difficult to prepare *forecasts* of future goods traffic for Namibia. The attempt made in the report is also somewhat unsystematic, and has not been based om vital marketing data. On the other hand, many of the trends identified appear plausible, and there is therefore a need to consider them when formulating the first plans for the development of the transport network after independence.

One conclusion is that the *total level* of demand for *cross-border* transport is not likely to change much during the rest of the century, implying that substantial additions of capacity are not warranted, in general. Another conclusion is that there are likely to be *important changes* in the structure of the flows as regards *modal split and routes*. The trade regime chosen by the new government will, however, not be the primary factor in determining these changes in the flow; they are likely to materialise in any case, and will only be *reinforced* by a decision not to become a member of *the Southern African Customs Union*, (SACU), of which the country is now an 'implicit' member.

A third conclusion is that *rail traffic* to and from South Africa is likely to *diminish* substantially, from the current level of almost 1 million tonnes per year to perhaps 25 % of this volume at the end of the next decade. The route to Walvis Bay (or alternative deep-water port; see below) will instead take over as the main artery of the Namibian railway system rising from the current 600 ktonnes to close to one million tonnes towards the end of next decade. It can also readily be envisaged that most of the domestic growth in rail transport will benefit the railway system in the northern parts, while the railway system in the south will see its role significantly reduced.

More specifically, there will be a tendency towards *shorter* transport distances by rail, indicating that the demand for tractive power may in fact decrease over the next ten years. In view of the facts that TNL has a fleet of old *locomotives* and that there is surplus capacity at present, there is need for a careful evaluation of alternative strategies for the development of the motive power fleet.

The conclusions in respect of *railway wagons* are different, for two reasons. The first is that most of the wagons used in international traffic at present are South African; the other is that the composition of traffic to be carried will change substantially, with much more containerised goods and less bulk commodities. The demand for Namibian-based wagons may therefore increase, including the demand for more specialised wagons.

Finally, the trends identified underscore what has been stated above about the financial situation of TNL, and its consequences. These imply that there is a need for careful evaluation of *the proper structure of the railway network*, and — more specifically — for considering a reduction in its size. In fact, it cannot be ruled out that the most appropriate railway network for Namibia for the next century would only link Windhoek and the north with the country's deep-water port.

A fourth conclusion is that *improved roads to neighbouring countries* are likely to attract considerable heavy goods traf-

fic. They will mainly be used to import goods to the country. In the case of the proposed road through Botswana, most of the traffic will be diverted goods traffic, which currently uses the road and rail routes via Nakop. Reduced transport costs can in general be expected to be beneficial to the Namibian economy.

Finally, the analysis underscores the importance of a deep-water port. While no one probably would question this statement, the role of the port *is likely to become increasingly important* in the future to the Namibian economy. And this development will materialise even if no specific strategies are devised to reduce independent Namibia's dependence on the South African economy.

Organisational Development

At independence, a new government structure will be introduced consisting of 16 ministries. The Ministry of Works, Transport and Communications (MOWTC) will, *inter alia*, be responsible for transport and communications. This report is based on the assumption that the present department structure of the Windhoek administration as regards transport and communications will be retained. After independence, DOT and DOPAT are thus assumed to report to MOWTC. It is therefore proposed that the additional functions — only pertaining to transport — which need to be introduced by the government after independence should be handled by DOT.

It is proposed that the initial step to strengthen *civil aviation* should comprise:

- the enactment of comprehensive Namibian civil aviation laws (see above);
- the establishment of a separate unit — *a directorate* — with a director reporting to the Secretary for Transport;
- the retention of the units involved in aviation matters and attached to DOT's Directorates Roads and Mechanical and with their current functions;
- the target that the new directorate will possess the basic competence and facilities required to perform the most vital functions within one year after independence;
- the recruitment of *three* civil aviation *experts* with *technical assistance* from a donor to initially serve as director of civil aviation, head of the Aviation Safety Division and head of the Air Transport Division; and
- the recruitment of staff to fill *all* vacancies in the present establishment for the aviation — related units in DOT.

The initial step for establishing competence in the sphere of *maritime affairs* is recommended to comprise:

- the enactment of comprehensive Namibian maritime affairs laws (see above);
- the establishment of a separate unit — a *directorate* — with a director reporting to the Secretary for Transport;
- the retention of the maritime affairs functions currently performed by other Namibian institutions where they are now;
- the target that the new directorate will possess the *basic* competence and facilities required to perform the most vital functions within one year after independence. It is assumed that the directorate will be able to hire services whenever they are available from the private sector;
- the recruitment of *two* maritime affairs *experts* with *technical assistance* from a donor to initially serve as director of Maritime Affairs and head of the International Relations and Maritime Law Division; and
- the recruitment of staff to fill about 5 to 7 other professional posts.

A new unit should furthermore be established within the DOT for *policy and planning* and the personnel function should be strengthened with *a unit for manpower training and development*. The approach to setting up these new units should be the same as that outlined above, and donor assistance is recommended.

To improve overall performance and efficiency of the transport and communications sectors, the following recommendations are made:

- the proposed study on road taxation (see above) should also focus on the *financing* of road maintenance and construction by means of *earmarked* taxes;
- the Department of Posts and Telecommunications should be *converted* into *one government owned* company for both postal and telecoms services; and
- a *master plan* should be prepared for the telecoms network to identify the future requirements.

Technical assistance will be needed to implement all these recommendations. Five different projects have been designed corresponding to all the recommendations; they should be implemented soon after independence.

Manpower Requirements and Development

A common and recurrent problem facing the transport and communications sectors, identified by managers and heads of departments, is *the shortage of certain skills*. Particulary important in this context are the shortages of staff with technical skills — engineers, technicians and mechanics. However, when looking at the present situation, it is necessary to not only view present shortages as reflecting inadequate training, improper training and lack of training capacity. These problems are no doubt *one* important explanation, but there is in addition a need to consider *the efficiency of the labour market (i.e. how the available manpower resources are in fact made use of), particularly in the context of the public sector.*

The public sector faces two major problems. It has a *very large civil service*, and its employees expect *wages which are high and on par with those of South Africa*. The main approach of a reform process would be to scale down and make the public service more effective. As part of this process, wages and benefit structures will also have to be made much more *flexible* than hitherto.

Another necessary measure is that salaries and benefits be increased soon for those staff categories of the DOT and, until incorporation, of the DOPAT who *can easily transfer* to other occupations. An increase in the salaries of the key posts would quickly eliminate most of the urgent needs. It would be *a very costly* solution to allow the public sector to continue to lose staff with these skills and to replace them, for example, by expatriates financed with donor assistance.

There have been speculations about the intentions of the present civil service and the professionals in the employ of pa-

rastatal and private companies after independence. Some rather dramatic assumptions have been made about the size of the exodus, based on the premise that many of the whites have come from South Africa or have close relationships with that country and would therefore have problems in defining a future for themselves in an independent Namibia.

The answer to the question of what should be done if people decide to leave is that this must not be allowed to happen and that *actions therefore need to be taken to prevent it from taking place*. These actions, which should focus on remuneration and motivation, are essential for a smooth transition. From the perspectives of the transport and communications sectors, it is sufficient to emphasise that they are very dependent on key skills in certain fields. If the members of the civil service were inclined to leave the country, *Namibia will first and foremost lose those persons which the country has most need of.*

The additional training and manpower development needs of the two sectors that can be foreseen in the near future include, in broad terms, the following:

- the formal and on-the-job training of staff required for manning posts to handle *new functions* in the fields of civil aviation, maritime affairs, transport planning and policy formulation, etc.;
- an increase in enrollment of trainees and capacity to train some of the skills which are in short supply or where shortages can develop in view of a possible higher staff turnover after independence;
- the development of *bridging programmes in order to widen the basis for recruitment* to the functional training programmes offered by the DOT, DOPAT and TNL, in the short-term. The recruitment to these bridging courses would essentially be based on *aptitude testing*; and
- where necessary, the formulation of *career paths*, including an identification of additional formal and on-the-job training required, including coaching by experienced staff *to speed up the advancement of Namibians trained abroad* with inadequate experience according to the required qualifications.

Proposals are made in the report for donor-financed technical assistance projects to assist with tackling these problems after independence. The projects should be implemented as soon as possible.

Improvements to the Transport and Communications Networks

Independent Namibia will inherit a transport and communications network of high standard, providing a good starting point for future development. The improvements that can be envisaged for the first five to ten years after independence are very much, although not exclusively, a *consequence of the South African rule*, viz. the lack of attention paid to areas primarily inhabited by black Namibians, the underdevelopment of road and telecommunications connections with the SADCC-member states, and the fact that independent Namibia will not be in control of Walvis Bay. The required improvements in respect of the railway can also, at least partly, be seen as a legacy of the South African rule, and the fact that the Namibian network was operated as a region by SATS until the establishment of TNL. The absence of an independent Namibian system meant that not all the facilities were provided that would normally be expected to be part of a railway administration.

A total of 19 projects envisaged to be required for the near future — *and suitable for donor financing* — have been identified. Most of the projects have been proposed elsewhere, e.g. by the United Nations Institute for Namibia (UNIN), and by the Windhoek administration as part of its preparation for the country's independence. Many of the projects are also included in the investment plans for the next 3 to 5 years formulated by the administrations concerned in Windhoek.

The proposed *project catalogue* to improve the transport and communications networks contains 5 port projects, 4 road projects, 7 railway projects, one civil aviation project and 2 telecommunications projects. The bulk of the projects serve to ensure that *Lüderitz* is upgraded to become a commercial port, primarily for coastal traffic, to provide better facilities in the *northern part* of the country, and to improve connections with neighbouring *SADCC-member states*.

One of the recommended projects is a *Study on Future Port Facilities for Namibia*. This is in view of the uncertainty of the future status of Walvis Bay and access to its port facilities. Available information suggests that new port facilities can be constructed as an alternative to Walvis Bay at several places to the north of Swakopmund. It is also possible to construct a smaller port initially to serve as a fishing port, and later to develop it into a fully-fledged port, if warranted. A small port at Henties Bay would cost USD 70-150 million, while a complete port in this location would cost, say, USD 500 million. It would be much cheaper to develop Lüderitz, less than a quarter of the aforementioned sums, but Lüderitz is in the wrong location for both commercial shipping and fishing.

A *priority* has been established for each project. Priority 1 identifies projects which are recommended for implementation to commence during the first 12 months after independence. Priority 2 identifies projects which should not be started during the first 12 months after independence.

ABBREVIATIONS

ACC	Area Control Centre
ACTS	Advisory Committee on Transport Services
AG	Administrator-General
AIP	Aeronautical Information Publication
ATC	Air Traffic Control
CE	Project Code: Civil Engineering Project
CFM	Caminho Ferro de Mocamedes, Angola
CIIR	Catholic Institute for International Relations
CPI	Central Personnel Institution
CRF	Central Revenue Fund
DME	Distance Measuring Equipment
DOPAT	Department of Posts and Telecommunications, Windhoek
DOT	Department of Transport, Windhoek
dwt	Deadweight Ton
ECA	United Nations Economic Commission for Africa, Addis Abeba
ENOK	Eerste Nasionale Ontwikkelingskorporasie van SWA Bbk (First National Development Corporation), Windhoek
FIR	Flight Information Region
FY	Financial Year
GE	General Electric Corp., USA
GG	Government Gazette of the Republic of South Africa
GM	Project Code: General Management Project and/or Study
GST	General Sales Tax
HF	High Frequency
ICAO	International Civil Aviation Organization, Montreal
IDAF	International Defence and Aid Fund for Africa
ILS	Instrument Landing System
IMO	International Maritime Organization, London (previously IMCO)
ITU	International Telecommunications Union, Geneva
LPG	Liquefied Petroleum Gas
LRTB	Local Road Transportation Board
ME	Project Code: Mechanical Equipment Project
MMF	Multilateral Motor Vehicle Accidents Fund
MOWTC	Ministry of Works, Transport and Communications
MVA	Motor Vehicle Accidents Fund
NAM	Namibia
NDB	Non-directional Beacon
NRSC	National Road Safety Council of South Africa
NTC	National Transport Corporation Limited
NTPS	National Transport Policy Study
OECD	Organisation for Economic Co-operation and Development, Paris
OG	Official Gazette Extraordinary of South West Africa
PAC	Privatisation Advisory Committee
PADSWA	Padvervoervereniging van Suidwes-Afrika (Public Carriers Association of Namibia)
PANAFTEL	Panafrican Telecommunications Network
RSA	Republic of South Africa
RTB	Road Transportation Board of South West Africa
SAA	South African Airways
SAAF	South African Air Force
SACU	Southern African Customs Union
SADCC	Southern African Development Co-ordination Conference
SAECS	Southern Africa Europe Container Services (Consortium)
SAFREN	Safmarine and Rennies Holdings Limited
SAF-MARINE	South African Marine Corporation Limited
SAP	Special Assistance Programme for Angola
SAPT	Department of Posts and Telecommunications, Pretoria
SAR&H	South African Railways and Harbours Administration
SATCC	Southern Africa Transport and Communications Commisssion, Maputo
SATS	South African Transport Services
ST	Project Code: Signal and Telecommunications Project
STCN	Study on Transport and Communications for Namibia
SWA	South West Africa
SWAA	South West Africa Administration
SWABC	South West African Broadcasting Corporation
SWAWEK	South West Africa Water and Electricity Corporation Limited
TBVC	Transkei, Bophutatswana, Venda and Ciskei
TC	Project Code: Telecommunications Project
TCL	Tsumeb Corporation Limited
TGNU	Transitional Government of National Unity
TNL	TransNamib Limited (formerly NTC)
TOR	Terms of Reference
TU	Technical Unit of SATCC, Maputo

UHF	Ultra High Frequency
UNCN	United Nations Commission for Namibia
UNGAR	United Nations General Assemby Resolution
UNSCR	United Nations Security Council Resolution
UNIN	United Nations Institute for Namibia, Lusaka
UPU	Universal Postal Union
VHF	Very High Frequency
VOR	Very High Frequency Omnidirectional RadioBeacon
vpd	Vehicles Per Day

Exchange Rates and Currency Units

For the purposes of this report, the following approximate exchange rates applicable at mid-1989 have been used:

1 US Dollar (USD) = 2.75 Rand (R)
R 1.0 = USD 0.36

1. INTRODUCTION

1.1 Historical Background

Namibia was under German colonial rule during the period leading up to the First World War. In 1915, South African troops, acting in concert with the British, occupied what was then German South West Africa. After the end of the war, in 1919, the League of Nations granted South Africa a mandate to administer the territory on behalf of Great Britain.

Subsequent to its establishment, the United Nations ruled in 1946 that Namibia and other former League mandate territories were to become trust territories and should be granted independence under an agreed timetable. South Africa, however, refused to sign the Trusteeship Agree-ment and instead insisted that Namibia be incorporated fully within its own boundaries. The protracted dispute between South Africa and the UN culminated in the formal termination of South Africa's mandate in terms of United Nations General Assembly Resolution (UNGAR) 2145 (XXI) of October 1966. In 1967, the General Assembly then established the Council for Namibia (UNCN) to assume administrative resposibility for the territory. The Security Council reinforced this decision in 1969 declaring South Africa's continued occupation illegal and calling on South Africa to withdraw. In June 1971, the International Court of Justice ruled in an Advisory Opinion that South Africa's continued administration was illegal.

Since the mid-1970s there have been continuous efforts aimed at securing an internationally acceptable form of independence for Namibia. In 1977, South Africa announced its willingness to accept, in principle, a role for the UN in the independence process. On 1 September of that year, the existing Administrator was replaced by the first Administrator-General (AG), ostensibly to prepare the ground for internationally recognised independence in accordance with the principles formulated by a "Contract Group", comprising five western powers. These principles were subsequently embodied in the United Nations Security Council Revolution (UNSCR) 435 in September, 1978. During 1978, the then South African prime minister also announced South Africa's provisional acceptance of these principles.

Because of South African objections to various aspects of proposals made by the UN Secretary General for the implemenation of UNSCR 435, the independence process collapsed. Further significant headway of the process towards independence was not made until 1988.

The revived independence process, now linked to a programme for achieving a regional settlement of the conflict in south-western Africa, was confirmed by the governments of Angola, Cuba and South Africa in July 1988. Then, on 13 December of the same year, these three parties signed the Brazzaville Protocol, by which the UN Secretary General was recommended that 1 April 1989 be established as the date for the implementation of UNSCR 435.

As a precursor to the commencement of the implementation of 435, the so-called Transitional Government of National Unity (TGNU), installed by South Africa in 1985, was dissolved on 28 February, 1989. In effect, the AG then took over all governmental duties, including duties pertaining to the transport and communications sectors. The administration under his control is referred to as the Windhoek administration in this report.

1.2 Background to and Purpose of STCN

With improving prospects for independence, the Swedish International Development Authority (SIDA) decided to finance technical assistance for a Study on Transport and Communications for Namibia (STCN) with the following purposes:

(i) To study, against the background of the Namibian economy, the existing transport and communications networks, including their technical, economic, financial, operational, legal, manpower and administrative set-up, and any other related issues.

(ii) To analyse the present state of these subsectors in order to obtain a basis for planning the efficient operation of the transport and communications services.

(iii) To prepare plans for manpower requirements and to propose training programmes.

(iv) To prepare other short-term priority projects to meet the needs identified in the study, suitable for presentation for donor financing.

SIDA subsequently commissioned SWECO as the Consultant for carrying out the STCN.

1.3 This Report

Structure

The report contains two sections. The first is concerned with an identification of the structure of the transport and communications sectors at the time of the phasing out of the South African rule in Namibia, and more precisely up to the end of 1989. This section, which includes Chapters 2 to 10, also attempts to provide a background to and an identification of some of the driving forces behind the current state of the art. Chapter 2 provides a framework for and a summary description of the transport and communications sectors. The current legal structure and ongoing legislative changes are described in Chapter 3. Chapter 4 tries to capture some of the main ideas which have influenced the formation of transport policies not only in Namibia, but also in South Africa in recent years, and which will continue to influence the reformation of the legal structure of the Namibian transport and communications sectors until the advent of independence. Chapter 5 describes the transport and communications networks, with an emphasis on the infrastructure.

The following three chapters are devoted to the three institutions of main interest to the two sectors, viz. the Department of Transport (DOT), the Department of Posts and Telecommunications (DOPAT) and TransNamib Limited (TNL). In addition to describing their mandates, organisational structures and manpower situation, views are presented on certain aspects of these organisations, which may warrant attention during the post-independence period. The last two chapters of this section present the other main

actors in the transport sector, viz. the private transport operators, freight forwarding and travel bureau companies (Chapter 9), and data on past and current transport demand (Chapter 10).

The focus of the second section, Chapters 11 to 14, is on identifying projects which are believed to be suitable for donor assistance after independence. The identification process takes as a starting point the review of the two sectors presented in Chapters 5 to 9 and, in particular, the main issues presented in them. Another basis for project identification is provided by Chapter 11, which contains a first attempt at making predictions of future international transport flows and at reviewing the possible changes which may occur during the nineties on account of independence. One of the issues being covered is the implications of independent Namibia opting for its own trade regime, and thus not becoming a member of the Southern African Customs Union (SACU), of which the country is now an "implicit" member.

Chapter 12 considers (i) the consequences of independence for in particular DOT in having to shoulder the responsibilities of a fully-fledged ministry in the transport and possibly also in the communications sector, and (ii) the need for changing the organisational framework of DOPAT. Chapter 13 reviews the challenges in respect of manpower and manpower development on account of, *inter alia*, (i) current shortages of staff, (ii) possible losses of staff after independence, (iii) the need for integrating returnees, and (iv) the need for performing new functions. Again, the ultimate goal of the review is to define a proper format for donor assistance. Chapter 14, finally, is concerned with improvements in the transport and communications networks. This chapter also reviews the possibility of establishing new port facilities in view of the South African control of Walvis Bay, and the need for a study on such new facilities.

Projects and Project Catalogue

It should be emphasized that the projects which are singled out in this report are of a short to medium-term character. Short-term is understood to mean up to 12 months after independence, while the medium-term covers a 3 to 5 year period after independence. This distinction is used to establish priorities for the projects; short-term projects are thus recommended for implementation during the immediate post-independence period. Their urgency is based on a need for (i) enabling independent Namibia to perform the functions normally required of a government, (ii) tackling the manpower issues which existed even before independence but which will gain momentum thereafter, and for (iii) initiating work to review the need for alternative port facilities for independent Namibia.

1.4 Walvis Bay and the Penguin Islands

The only deep-water port on the Namibian coast is Walvis Bay. Walvis Bay was never a part of German South West Africa. The Bay and a small enclave surrounding it were annexed by Great Britain in 1878 on behalf of the Cape Colony. From 1922 Walvis Bay was "administered as if it were part of the mandated territory and as if inhabitants of the said port and settlement were inhabitants of the mandated territory" (The South West Africa Affairs Act, No. 24 of 1922), i.e. as an integral part of Namibia.

However, in 1977, Walvis Bay, including the surrounding territory (all in all 1 124 km²), was reincorporated by South Africa into Cape Province on the very same day as the first Administrator-General (AG) was installed in Windhoek.

In response to this event, the Security Council in 1978 unanimously adopted a resolution (UNSCR 432) stating that "Walvis Bay is an integral part of Namibia" and that "the territorial integrity and unity of Namibia must be assured through the reintegation of Walvis Bay within its territory". Current expectations are therefore that when Namibia attains its independence, upon completion of the process laid down by UNSCR 435, the first government of independent Namibia will not be in control of Walvis Bay and the surrounding territory claimed by South Africa. UNSCR 432 states, however, that the Security Council will "lend its full support to the initiation of steps necessary to ensure early reintegration of Walvis Bay into Namibia".

The port of Walvis Bay will in this report be treated as part of Namibia. The name of Walvis Bay will normally be used exclusively and may refer to the port, the town with the same name or to the territory claimed by South Africa, depending on the circumstances. For the purpose of clarity, the word enclave will also be used at times to signify the area claimed by South Africa. Any description of and reference to the current arrangements in Walvis Bay or for trade, traffic and communications to and from Walvis Bay shall therefore not be viewed as a recognition of the legality of South Africa's claims.

A similar disclaimer also applies to the so-called Penguin Islands, strung along the Namibian coast from a point south of Walvis Bay to the Orange River. During the 1860s, the 12 Penguin Islands were declared British territory and in 1874 annexed to the Cape Colony. No reference is made to these islands in any of the South African enabling laws applied to Walvis Bay and Namibia. In a letter to the UN Secretary General dated 29 May 1980, South Africa, however, confirmed its territorial claims to the 12 offshore islands[1].

The South African claim to the Penguin Islands has a bearing on the Namibian transport sector as it can restrict access to and control of the waters off the Namibian shore. Two of the islands, Seal and Penguin, are furthermore in the middle of the bay forming the only other natural port of Namibia, viz. Lüderitz. (Lüderitz is the only port over which the government of Namibia can now be envisaged to exercise full control at independence). South Africa furthermore claims 200 (nautical) mile fishing zones in the waters extending from Walvis Bay and the Penguin Islands, all in all constituting about 14% of the Namibian offshore waters within the 200 mile limit.

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1) The South African claim is unclear and appears to be in respect of 14 islands. One island, Long Island, is actually two islands, North and South Long Island; see ref. 51. Another island is referred to as "Sinclair's (formerly also known as "Roast Beef")" in the above-mentioned letter to the UN Secretary General. There are, however, two separate islands with these names and the South African Sea Fishery Act, 1988, (Act No. 12 of 1988), identifies "Little Roastbeef Island" and Sinclair Island as different islands (Schedule 2).

2. THE NAMIBIAN TRANSPORT AND COMMUNICATIONS SECTORS; AN INTRODUCTION

2.1 Introduction

This report primarily covers the public side of the transport and communications sectors, although the structure and size of the private contribution to the sectors will also be outlined. To pave the way for the more detailed descriptions and reviews, which follow in the subsequent chapters, to begin with this chapter contains an outline of the public role in transport and communications, including a review of the reasons for government involvement in the sectors.

The chapter also presents a bird's-eye view of the arrangements in Namibia in 1989, i.e. during the immediate pre-independence period. The emphasis is on the current role of the government and the organizational structure. Little will be said here about the physical aspects; an overview of the transport communications network is pro-vided in Maps 1-4, at the end of the report.

2.2 A framework — the Role of the Government

Ultimately, the purpose of the transport and communications sectors is the *production of services*, demanded by (i) households and individuals (consumers), (ii) firms (producers of goods and other services) and (iii) the public sector. The transport and communications sectors are therefore, in principle, no different from other productive sectors of a nation's economy.

Features of Transport and Communications

Yet, at the same time, it is necessary identifying a number of features — to some extent interrelated — which set the two sectors apart from other sectors:

(i) Government *intervention* and *involvement* are normally on a larger scale.

(ii) The degree of *concentration* (i.e. in terms of the number of different firms) is very high in some of the sub-sectors. For example, there is normally only one telecoms operator in a country.

(iii) On the other hand, the degree of *vertical integration* (i.e. in terms of the number of firms involved in the production of the end product) may often be low. For example to produce a transport service by road there is a need for three types of "firms", viz.:

  (a) the road haulage company;
  (b) the road administration; and
  (c) the freight forwarding agent.

(vi) The distinction between *line mode*, i.e. the supply of services at a pre-arranged time irrespective of actual demand, and *charter mode* , i.e. the supply on demand, is important. Normally services are made available when ordered by the client as is the case for telecoms services, but in transport there is a significant amount of scheduled services. For example, most of the supply of air transport is in the form of scheduled services, while charter flights only play a complementary role, particularly in Africa.

It should be added that these characteristics are not unique to the two sectors in question; it is rather a question of a difference in degree. Their importance is also determined by such factors as the size of an economy and the degree of economic development. Consequently the structure of the transport and communications sectors varies significantly between different countries.

Railways can be used to illustrate this point. In most countries, there is only one railway company. This company is normally publicly owned as well as a fully integrated operator, thus handling everything from marketing to the maintenance of infrastructure. A railway also operates typically according to a schedule. However, in some countries (for example Finland and Sweden) there is less vertical integration, as one producer takes care of the infrastructure and another is responsible for all other activities. And in yet other countries (for example the U.S.), there are several firms, to some extent competing, in the production of rail haulage services, and the role of independent freight forwarding agents is very important. In these countries, charter operations are also becoming more and more a feature of operations, or rather the distinction between charter and line modes is becoming more and more blurred.

Types of Roles Played by Government

These variations, however, also reflect significant differences in the *role* played by the government (including local governments) between countries. In principle, there are two distinct roles to be played by the government, i.e. as (i) an owner and as (ii) a regulator.

Ownership takes several different shapes, among which the following are the normal ones:

(i) As a *branch* of a government ministry.

(ii) As a *statutory board*, under the direct jurisdiction of a ministry, which means that the producer is not viewed as a separate legal personality but is still a part of the government.

(iii) As a *statutory company*, normally also subject to laws regulating incorporated bodies in general (such as a Company Act), which means that the producer is a separate legal personality.

(iv) As an *ordinary company*, with the government owning (the majority of) the shares.

The government as a *regulator* involves the establishment of rules and constraints which private and public producers have to follow and act within. Regulatory activities normally have the following distinctive aims:

(i) To improve safety, i.e. to reduce the *risk of accidents*, for example speed limits on roads.

(ii) To control and combat *pollution*, for example the regulation of fuels and emissions from vehicles.

(iii) To enhance *market transparency*, for example the regulation of information to be made public about quality and prices.

(iv) To improve *economic efficiency*.

When referring to regulations, the normal association is to the last type, i.e. to *economic* regulations. These — essentially — comprise rules concerning:

(i) *Entry* into a market, for example the right for a trucking firm to undertake transport for hire and reward.

(ii) *Exit* from a market, for example the procedures for closing down a branch line of a railway.

(iii) *Capacity*, for example the number of trucks that a firm may operate for hire and reward.

(iv) *Price*, for example the price to be charged for a taxi ride.

Reasons for Government Involvement

The reasons for the high degree of government intervention or involvement in the transport and communications sectors are normally stated as being the following:

Most production activities rely on infrastructure (roads, etc.). Although being nothing but capital production factors, infrastructure is believed to be different in nature from other capital goods in that it gives rise to scale economies and is characterized by a high degree of *uncertainty*. The presence of scale economies implies that the unit cost of production is lower the larger the amount of units produced. Railway operations are often believed to be characterized by scale economies. Scale economies may imply that it is economically efficient to have only one producer, and they also tend to reinforce a *monopolistic* market structure on their own.

The uncertainty is due to several factors, viz. the high cost normally associated with infrastructure investments, their long (economic) life (perhaps 20-40 years), and not least that the investment is largely sunk. In other words, if the investment in retrospect proves to have been wrong, only limited monies can be recovered. This is in contrast with investments in industry, where the degree of recovery is much higher.

A third reason for government intervention and involvement in the transport sector is that investments in infrastructure and the amount of supply of scheduled services almost always affect the *quality* of transport (in addition to the price of transport). The most important quality dimension is that of time. It is often believed that the government must be involved to ensure a correct consideration of the quality impact.

A fourth reason is that investments and other decisions in the transport and communications sectors have effects on the distribution of incomes of households and geographical regions. These effects can be amplified by government intervention, for example through the sub-sidization of transport and communications.

A further reason for government involvement in transport and communications is related to the fact that traffic often has to cross international borders. To facilitate the production of services, thereby reducing costs, there is a need for streamlining regulatory activities, whether they be of governmental or industrial origin. The mechanisms used are either through entering into bilateral agreements or by becoming signatory to multilateral agreements.

Multilateral agreements play a significant role as regards the entire regulatory framework — and hence — legal framework in civil aviation and maritime affairs, but also in telecommunications and postal services. Bilateral agreements are normally used to regulate international road transport. In railway operations, on the other hand, the companies concerned usually establish their own procedures for cross-border operations.

Transport and Communications Policies

A government's views on ownership and the regulatory framework are expressed through its transport and communications policies. When studying such policies, it is important to make a distinction between the *objectives* and the *means* used to attain the objectives.

A common objective underlying transport and communications policies is that of *economic efficiency*. Most OECD countries have formulated policies which embody this objective. Normally, economic efficiency is also in the forefront of the activities of development financing institutions, such as the World Bank and the African Development Bank.

It is, however, common to supplement the efficiency objective with objectives related to the *distribution of incomes*. Operative objectives in this field are all but non-existent. Instead income distributional effects are generally considered on an *ad hoc* basis when making a decision on ownership, the design of regulations and the setting of prices and tariffs. Therefore, such decisions are rarely based on efficiency considerations alone.

Deregulation

For some years, the transport and communications sectors in many countries have undergone significant changes on account of new or modified policies. As will be discussed in Chapter 4, these developments have also had significant repercussions on the Namibian, as well as the South African transport and communications sectors in recent years. The catchwords normally used to refer to these new policies are *deregulation*, *liberalisation* and *privatisation*.

Although the actual contents vary from country to country, the underlying theme is a reduction in the government's role as an owner, and to make economic regulations more liberal. Other types of regulations have, on the other hand, often been tightened, although not necessarily only on account of economic deregulation.

A number of considerations seem to underly the deregulation of transport and communications, such as:

(i) The scale economies in the sectors have become or are believed to be less important than before.

(ii) The role of uncertainty has become less critical because of shorter economic lives and improvements in financial markets.

(iii) Government-owned operations are conceived of as being inefficient, particularly in a monopolistic environment.

(iv) Regulatory activities are viewed as often serving to protect the interests of established producers rather than the consumers, thereby also giving rise to inefficient operations.

(v) Transport and communications are viewed as being ineffective means for affecting income distributional

changes, as the benefits are partly reaped by the wrong persons or the wrong regions.

(vi) Central planning of transport and communications infrastrucure networks has tended to be less rational than envisaged, partly on account of lack of information and partly because of distorted incentives.

2.3 A framework — Organisational Structure

When describing the structure of the transport and communications sectors, there is a need for a consistent terminology. For the purposes of this report the following terminology is used. The two sectors contain the following *sub-sectors*:

Transport: Roads, Railways, Civil Aviation, Ports, Maritime Affairs (including shipping), Local Transport and Intermediaries. Communications: Telecoms and Posts.

Within each sub-sector, it is possible to identify one or more types of *operators*. All types of operators of a sub-sector must, in principle, partake in one way or another in order to produce a complete service, as viewed by the customer.

The domain of activity of each type of operator normally includes several *activities*, sometimes more suitably referred to as *market segments*.

The main parts of the structure of the sectors as described in this way are summarised in Table 2.1, which contains the terms used in the sequel.

2.4 A Bird's-eye View of the Pre-independence Situation

Roads

A government department, the Department of Transport (DOT), which is part of the Windhoek administration, is responsible for the provision and maintenance of public roads (so-called proclaimed roads) outside certain municipal and other areas. DOT has considerable in-house capacity to execute all the activities associated with this on its own.

However, for undertaking feasibility studies, detailed design and construction works, the DOT sometimes contracts private firms, several of which are not only registered in Namibia, but are also controlled by Namibian interests. DOT is essentially self-sufficient in road maintenance. The arrangements for the provision and maintenance of roads are, in principle, similar to those of most other countries.

Table 2.1 Organisational Structure; Transport and Communications Sectors

Sector	Sub-sector	Types of operators	Activities; market segment
Transport	Road	Provider and maintainer of roads	Planning, design and constrution. Maintenance.
		Road transport operators	Road haulage (transport contractors) Bus transport (bus lines). Charter (bus and car hire)
	Railways	Provider and maintainer of railway infrastructure	Planning, design and construction. Maintenence of track, signalling and telecoms facilities.
		Railway operators	Passenger traffic. Goods traffic.
	Civil Aviation	Provider and maintainer of airports	Central gov't owned. Local gov't owned. Private.
		Provider of air traffic and rescue services	Air traffic control and information. Air navigation facilities Meteorology. Search and rescue services.
		Air operators	Scheduled airlines. Charter companies. General aviation.
	Ports	Provider and maintainer of port facilities	Entrance channel, quays, cranes and other loading/unloading facilities. Storage facilities.
		Port operators	Handling services. Stevedoring. Pilotage. Navigational aids.
	Maritime affairs	Provider of navigational aids, search and rescue services, etc	Navigational aids. Search and rescue services. Pollution control and combatting services. Coast guard services.
		Operators	Liner services. Tramp operators. Fishing vessels. General.
	Local transport	Provider and maintainer of terminals	Bus terminals. Taxi ranks.
		Local transport operators	Bus lines. Taxi.
	Intermediaries	N.A.	Clearing and forwarding agents. Shipping agents. Travel bureaus.
Communi-cations	Telecoms	Provider and maintainer on infrastructure Telecoms operators	Planning, design and construction. Maintenance Telephone. Telex. Data services. Fax.
	Postal services	Provider and maintainer of infrastructure	Planning, design and construction. Maintenance.
		Postal service operators	Mail. Parcels. Money orders. Banking.
		Transport operators	Airmail. Surface mail.

N.A. = not applicable

The road transport of goods and passengers is undertaken by private companies (about 50). There is only one exception, viz. TransNamib Limited (TNL; formerly the National Transport Corporation).

TNL is a publicly owned statutory company responsible for the railway operations and the port of Lüderitz, but TNL is also the largest road haulage operator and is engaged in bus traffic on a small scale. TNL road services primarily serve as a feeder to the railway. One of the largest private road haulage companies is South African (owned by Trencor Limited), although it is also registered in the country. However, most road transport companies are Namibian. Only larger operators are incorporated. Road haulage is normally on a charter basis, but there is one domestic courier operating on a schedule for the transport of parcels. TNL's services are also scheduled.

The regulation of entry and capacity is stringent, essentially in order to protect the railway. There is only price control of scheduled bus services, which is not a well-developed sector, although minibus services have become common in recent years. Regulatory activities are performed by the Road Transportation Board (RTB), under the auspices of the DOT.

Many private Namibian road transport operators are members of the trade association, the Public Carriers Association of South West Africa (PADSWA).

Railway

TNL has a *de facto* monopoly in the railway sub-sector, also being a vertically integrated producer. The railway undertakes most construction work on its own. Operations for both passengers and goods are based on timetables. Regulatory controls in respect of TNL are limited to the closure of branch lines, investments in new infrastructure and the selling of shares (i.e. of ownership), and there are thus no capacity or price controls. TNL reports directly to the so-called Cabinet, i.e. in effect after the demise of the TGNU, to the AG.

TNL is a recent creation. Between 1922 and 1985, the system now operated by TNL was an integral part of first the South African Railways and Harbours Administration (SAR&H), and since 1981 of South African Transport Services (SATS). On 1 April 1985, some of SATS' assets were transferred to the Windhoek administration, but SATS were retained as manager and operator until the end of June 1988. TNL was put into effect on 1 July 1988 as the National Transport Corporation (NTC), and subsequently on 1 July 1989, changed its name to TransNamib Ltd.

Civil Aviation

Almost all major airports in the country are controlled by the DOT, with the exception of the aerodromes in Swakopmund and Oshakati, which are operated by local authorities and in Tsumeb, which is private. DOT is fully responsible for all installations, equipment,runways and taxiways, but only attends to day-to-day maintenance of the buildings. These fall, as is the case with all other buildings used by government departments, under the jurisdiction of the Department of Civic Affairs and Manpower. Direct air traffic-related services performed at the airports such as bagage handling, etc, are the responsibility of the air operators.

All functions related to air traffic control (ATC), and airspace organisation, etc. fall under the jurisdiction of the DOT, and are executed by its staff. At four of the government airports, ATC was performed by staff of the South African Air Force until the end of 1989. There will be a need for some kind of replacement, although full ATC will probably not be warranted any longer.

Functions related to aviation safety are the responsibility of the South African Department of Transport, although the DOT has posts in its organisation for undertaking the day-to-day work. Due to staff shortages much of this work is currently also done by Pretoria.

Scheduled domestic services are performed by Namib Air, which is part of TNL. Namib Air also flies to Maun in Botswana and to Alexander Bay, Cape Town and Johannesburg in South Africa. International scheduled services are in addition provided by South African Airways (SAA), Air Botswana and Zambia Airways. A regional airline, Safair Lines, serves the route Cape Town — Alexander Bay — Walvis Bay. Safair is part of the South African-based Safren Group.

Scheduled air routes and charter flights are regulated by the South African National Transport Commission, while international scheduled routes (except between South Africa and Namibia) can also be established through bilateral air service agreements. Two companies hold general charter licences for domestic operations, viz. Namib Air and Hire & Fly. Prices for scheduled and charter flights are subject to approval by the National Transport Commission.

Ports

The port of Lüderitz is owned and managed by TNL, which also provides ancillary services such as pilotage and cargo handling. Stevedoring is handled by the freight forwarding agents. The port of Walvis Bay is operated by SATS. Stevedoring in Walvis Bay is performed by private companies, while onshore activities are handled by SATS staff. Some of the storage facilities in Walvis Bay and Lüderitz are privately owned and run.

Maritime Affairs

All maritime-related affairs are run by the South African DOT, and there is no administrative capacity in this area in Windhoek for the moment. All vessels and seamen are thus currently certified or licenced by Pretoria. Lighthouses along the coast fall under the juridiction of TNL, except in Walvis Bay where SATS are responsible. In effect, no Namibian-based search and rescue services, pollution control and combatting, and coast guard services are provided, although the Windhoek Directorate of Sea Fisheries has two boats for fishery protection services.

There are no commercial shipping boats owned by Namibian companies and the only registered shipping line — Swakop Line — is owned by Unicorn Lines of South Africa. Most of the fishing vessels operating out of Walvis Bay and Lüderitz are owned by South African companies.

Walvis Bay is served by Southern Africa Europe Container Services (SAECS) — a consortium of South African and West-European shipping lines — on a regular line basis. Liner container services are provided by the Unicorn Lines between Walvis Bay and Lüderitz, and South African ports. Other services are normally in the form of coastal tramping (charter) operations between Walvis Bay and Lüderitz, on the one hand, and South African ports on the other. There is no shipping council in Namibia.

Local Transport

Windhoek is the only place with bus companies that provide scheduled bus services. One company is owned by the municipality and another is private. Local public transport is normally provided by taxis and minibuses operating as taxis but with the right to take up to 8 passengers. Taxis and minibuses are privately owned. Public permits regulating routes, number of vehicles and areas of operation are issued by the RTB, which also regulates the fares to be charged. The necessary infrastructure, for example bus stations, is provided by the municipality.

Intermediaries

Customs and clearing agents and travel bureaus are private. The largest agent is Woker Freight Services, with numerous shareholders. Renfreight has a 55% effective ownership and is in turn controlled by the Safren Group. Other large agents are controlled by European and South African interests, but there is also Namibian capital in this sub-sector.

The market for freight forwarding and travel bureau services is competitive with no specific regulation of prices, entry and quantity. The agents have as yet not formed any Namibian-based trade associations.

Telecoms and Postal Services

The Department of Posts and Telecommunications (DOPAT), which is part of the Windhoek administration, is responsible for all activities in the posts and telecoms fields, including telex, data services and the operations of postal banking services. DOPAT also conducts planning and is responsible for the implementation of new projects, in addition to being the administrator of the laws governing postal and telecoms activities. The buildings used by DOPAT, are provided and operated by the Department of Civic Affairs and Manpower. Postal and telecoms tariffs are subject to Cabinet approval in Windhoek. The post office operates its own vehicle fleet, but relies on Namib Air, other air carriers and TNL rail services for long-distance distribution.

3. THE LEGISLATIVE FRAMEWORK

3.1 Introduction

The purpose of this chapter is to give a historical background to the laws in force in Namibia today, to identify their various sources and to provide an outline of the laws governing transport and communications.

Obviously, the legal framework has undergone some quite significant changes since late 1977, when the transition to independence can be regarded as having begun. Although the period since 1977 has been characterised by frustration of independence plans, some marked changes have occurred in the legislative and administrative structure inside Namibia, to the point where the set-up is now distinct from that of South Africa itself.

Appendix 1 contains further details and also provides a full list of references to the laws. However, the reader is cautioned to note that complete verification has not been possible. It should also be mentioned that additional background is provided in Chapter 4, which discusses the evolution of transport policies, as the recent legislative activities in Namibia do not only reflect South Africa's desire since 1977 for "Namibianising" the government, but also to implement new transport policies.

3.2 Historical Background

Period prior to World War II

Legislation currently in force inside Namibia takes a number of forms, reflecting the history of South African colonial control, the series of changes introduced since 1977, and the current administrative structure. All internal German colonial legislation from the period 1884-1915 was replaced by South African statutes after the RSA was given control over Namibia as a C-Class Mandate by the League of Nations in 1919. Civilian rule resumed in 1920.

Until 1 September 1977, Namibia (officially South West Africa) was administered in a manner comparable to a South African province — indeed, it was commonly dubbed "the Fifth Province". In terms of Article 2 of the Mandate, South Africa was permitted to govern Namibia as an integral part of itself subject to adaptations to local conditions and the other terms of the Mandate. Until South Africa became a republic in 1961, the British King or Queen was *de jure* head of state; thereafter, it was the South African State President.

The South West Africa Constitution Act, No. 42 of 1925, provided the basis of Namibia's administrative structure until the late 1970s. A South African provincial style of government was established, with an 18 member Legislative Assembly, comparable to a South African Provincial Council, providing representation for whites. Initially, however, it was more powerful than Provincial Councils, since it exercised jurisdiction over most non-strategic matters affecting the territory. However, ordinances of the Legislative Assembly were only valid in so far as they were not "repugnant to or inconsistent with any Act (of the South African Parliament) as applicable to the Territory" (ref. 56).

Furthermore, South Africa retained direct control over, *inter alia*, defence, security, police, foreign affairs, customs and excise, auditing, railways, harbours, civil aviation, the interior (home affairs), information, immigration, banking and currency. Carrying out the Assembly's legislation was the SWA Administration (SWAA), headed by an Administrator, the chief administrative official.

Period after World War II

The next major change occurred after the National Party's accession to power in South Africa in 1948. Following the UN's refusal in 1946 to permit Namibia's formal incorporation into South Africa, the new South African government passed the South West Africa Affairs Act, 1949. Reflecting Pretoria's desire for greater incorporation, the Act enabled Namibia's small white community to elect 6 members to the South African Parliament, and for two members from the territory to be nominated to the Senate. This arrangement was revoked on 28 September 1977, following the appointment of the first Administrator-General.

Namibia's black (non-white) poulation had no representation at all, except for a degraded form of traditional tribal councils promoted by the state for its own ends but not recognised by most of the population. The only exception was the mixed race "Baster" community centred on Rehoboth, south of Windhoek, which has exercised a degree of autonomy with significant legitimacy under its Kapteinsraad (Chief's Council) since the 1920s.

The Odendaal Commission

The most important loss of authority by the Legislative Assembly and SWAA occurred in 1968/69, when South Africa incorporated Namibia still more closely. A key component of this process was the imposition of a South African style bantustan system, in terms of which each officially defined African group would become self-governing within its respective bantustan in the Namibian periphery. The 1964 Report of the Odendaal Commission into South West African Affairs (ref. 56) provided the basis for this policy. No political rights would therefore exist outside the bantustans e.g. in the "white" towns and cities where many Africans lived and worked. The ultimate objective was to grant each bantustan "independence", thereby leaving the bulk of South Africa and Namibia as a "white man's land". Unlike South Africa, however, no Namibian bantustan was ever pushed that far.

The above changes were effected by the South West Africa Constitution Act, No. 39 of 1968, the Development of Self-Government for Native Nations in South West Africa Act, 1968, and, most importantly, the South West Africa Affairs Act, No. 25 of 1969. Several strategic SWAA functions, including Posts and Telecommunications (at that time referred to as Posts and Telegraphs), were transferred to the respective South African central government departments (which then opened offices in Windhoek) by the last-mentioned Act.

However, the Roads Branch of the SWAA was not removed, probably because jurisdiction over district and main roads (as defined in legislation) was intended to be devolved to the future bantustan authorities. Only trunk roads in the bantustans were to remain under SWAA control. Road traffic also remained under the control of SWAA.

1977 and Thereafter

As pointed out above, 1 September 1977 marked a watershed in Namibia's administrative and legislative history. The office of the Administrator-General (AG) and his powers were set out in the South African State President's Proclamations 180 and 181 of 19 August 1977, and Proclamation AG 7 of 1977. South Africa retained control over defence, security, international affairs and the constitutional status of Namibia, but the AG was empowered to administer all affairs in other spheres which previously fell under the relevant South African cabinet minister. He was also given wide powers to make laws and to amend South African Acts in so far as they pertain to Namibia.

Following the breakdown of plans to implement UNSCR 435 in 1978, South Africa proceeded to hold unilateral elections for a Constituent Assembly, which was subsequently transformed into a National Assembly in May 1979 by pro-

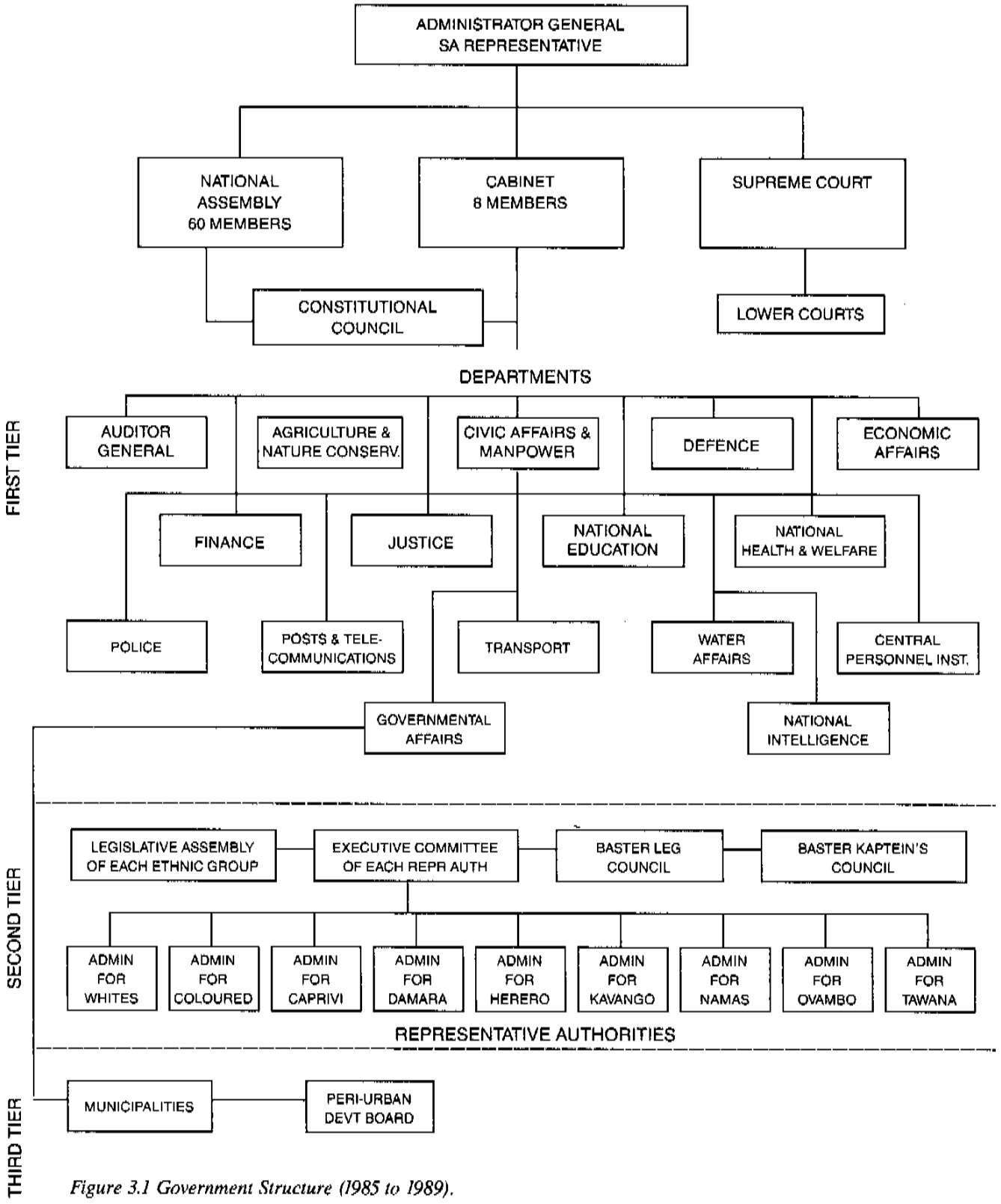


Figure 3.1 Government Structure (1985 to 1989).

clamation of the AG. The Assembly and its Council of Ministers assumed most of the AG's powers, with the AG - as the representative of South Africa's State President - holding a veto over all legislation and becoming in effect a colonial governor.

Throughout the period since 1977 significant legislative changes have occurred through the gradual replacement of South African statutes by laws pertaining specifically to Namibia. At least four elements can be distinguished

(i) Gradual repeal of inherited discriminatory laws and the specific outlawing of racial discrimination in residential areas and public amenities, for example. Many such measures were implemented by Proclamation of the AG before the National Assembly was created in 1979. Generally, racial clauses in South African laws, which are still valid in Namibia, therefore no longer apply.

(ii) The separation of administration and infrastructure in Namibia from their South African counterparts.

(iii) Implementation of measures more appropriate to Namibian conditions, e.g. the extension of road and road traffic legislation to the erstwhile bantustans.

(iv) The first steps towards deregulation and liberalisation of transport in accordance with changing state priorities.

The Government Service Act, No. 2 of 1980, which created a separate Namibian government service, thus heralded a gradual uncoupling of administration in the territory from that of South Africa, thereby reversing the trend so evident since World War II. The following 11 government departments were created: Civic Affairs and Manpower, Economic Affairs, Finance, Justice, Agriculture and Forestry (changed to Agriculture and Nature Conservation in July 1980), National Health and Welfare, National Education, Posts and Telecommunications (DOPAT), Constitutional Development, (later changed to Governmental Affairs) Water Affairs and Central Personnel Institution. In July 1980, Transport (DOT) was added as the twelfth department (see Figure 3.1).

In 1980 a separate account was furthermore established for the operations of the departments forming part of the Windhoek administration, the Central Revenue Fund (CRF). The CRF was in effect the successor of the former SWA Account. In view of its importance to the transport and communications sectors, details on the CRF, its current status and prospects for the near future are provided in Appendix 2.

The Second Tier Authorities

1980 also witnessed the creation of a three tier administrative structure in Namibia. The first tier, or central government, comprised the National Assembly and government service as already discussed.

The intermediate or second tier comprised 10 Representative Authorities, one for each of the officially defined ethnic groups, except Bushmen, whose affairs have been administered by central government. These bodies were created, and their powers and scope defined in relation to central government, by the Representative Authorities Proclamation, No. AG 8 of 1980.

In effect they superseded the former bantustans in the sense of being an ethnically exclusive and divisive form of administration, although now theoretically on a territorywide basis rather than within demarcated ethnoregions as previously. These Representative Authorities had responsibility for various social and "cultural" affairs e.g. education, health, pensions and "cultural promotion", but, apart from the maintenance of their own vehicle fleets, they have no responsibilities in the spheres of transport or communications. The Administration for Whites inherited most of the remaining assets, staff and organisational structure of the former SWAA in May 1980. The main exception was the former SWAA Roads Branch, which was transferred to the DOT.

The Representative Authorities had to comply with national laws and could not pass ordinances repugnant to national legislation, e.g. on removal of racial descrimination. However, the very basis of these authorities, being explicitly ethnic and enabling differences in service qualities and pension levels, for example, would seem to enshrine elements of discrimination.

Finally, the third tier of government comprises the local authorities (municipalities, village management boards, Peri-Urban Development Board), which have remained virtually untouched by the political and legal changes since 1977, except in so far as the repeal of discriminatory legislation has necessitated amendments to some bylaws and planning instruments. (The Peri-Urban Development Board is a statutory body charged with the execution of local authority functions in peri-urban areas and urban areas too small to sustain their own authorities). The main local authority role in the transport sphere relates to roads and road traffic, as some large municipalities exercise responsibility in these areas.

The Period 1983 to Date

Increasing conflict with South Africa over the degree of freedom given to the National Assembly precipitated its dissolution by South Africa in January 1983. All its powers reverted to the AG. However, the Representative Authorities continued to function. In mid-1985, a new National Assembly and a new cabinet were established, the so-called Transitional Government of National Unity (TGNU), comprising parties then prepared to work under South Africa's umbrella.

The TGNU was abolished on 28 February 1989, as a prelude to the implementation of UNSCR 435 when its powers reverted to the AG. For the same reason, the Representative Authorities lapsed on 31 March, 1989. Until the independece, the AG is overseeing their administrative functions, which have not changed. In lieu of the TGNU and the second tier Authorities, the AG is being advised by 5 general secretaries during the implementation of UNSCR 435. There is one General Secretary for Infrastructure, to which the heads of the DOT, the DOPAT and the Department of Water Affairs report. Otherwise, the departmental structure remains intact.

The transitional period can thus be summarised as having comprised five distinct chronological phases:

(i) Sept 1977 - May 1979: the AG, as South Africa's representative, held all power and ruled solely by proclamation.

(ii) May 1979 - January 1983: National Assembly held the main legislative power, subject to assent by the AG.

(iii) January 1983 - May 1985: AG again held all relevant power.

(iv) June 1985 - February 1989: TGNU and new National Assembly legislated subject to assent by the AG.

(v) March 1989 - March 1990: AG again in sole control.

3.3 Types of Legislation in Force before Independence and their Administration

Laws from a variety of origins are currently valid in Namibia, reflecting changes in the politico-constitutional framework outlined aboved. Administrative and legislative powers have been transferred between the AG and National Assembly several times, while some existing South African laws remain effective in Namibia and certain new laws were explicitly promulgated as being applicable in Namibia as well. Furthermore, South African laws applicable in Namibia have not always been replaced *in toto* but have sometimes merely been partially amended by Namibian Acts or Proclamations. Since the assumption of executive powers by the AG over the different departments between 1977 and 1979, only laws and legal amendments to existing laws gazetted in Namibia or passed by the South African Parliament with a validating clause for Namibia, apply in Namibia. Most amendments to earlier South African Acts, subsequently passed by the South African Parliament, do not fulfil these conditions.

The rest of this section categorises existing legislation in the transport and telecommunications sectors according to type/source and period when promulgated. A complete, annotated listing of relevant legislation is given in Appendix 1.

Laws Predating September 1977

(i) Acts of the South African Parliament which embrace Namibia as well. These fall mainly into two categories:

(a) Those pertaining to international affairs, e.g. ratifying international conventions, in terms of which Namibia, as a non-sovereign territory, falls under South African jurisdiction.

(b) Those specifically applied uniformly to South Africa and Namibia. A number of important Acts regulating the various transport modes (especially air, sea and road), fall into this category and are still in force.

(ii) Ordinances of the SWA Legislative Assembly. These implement legislation in the areas of competence of the SWAA at the relevant points in time, e.g. roads, road traffic, education, municipalities.

Laws Postdating September 1977

(i) Acts of the South African Parliament. Notwithstanding the powers granted to the AG and National Assembly, certain functions in the sphere of transport and communications are still administered from Pretoria, and several important South African laws, e.g. the Motor Vehicle Accidents Act, No. 84 of 1986, were explicitly promulgated as being applicable in Namibia as well.

(ii) Proclamations of the Administrator-General. The AG initially issued all "first tier" legislative changes in this manner because of the absence of a "national" legislative body. Executive powers over sectoral ministries were transferred to the AG from the respective South African cabinet ministers in terms of Proclamations AG 3 and AG 7 of 1977, as amended by Proclamations AG 10 of 1978 and AG 20 of 1982 (the so-called Executive Powers Transfer Proclamations). The specific powers in the fields of transport and communications are set out in Proclamations AG 12 and AG 14 of 1978. The only powers not transferred cover:

- operation of the relevant legislation in South Africa;
- persons and juristic persons or bodies functioning in South Africa or South Africa and Namibia; and
- international conventions or agreements, in which Namibia has no authority.

However, even after the creation of the National Assembly, laws passed by the Assembly had to be approved by the AG prior to publication in the Official Gazette. Furthermore, such laws came into operation on dates specified by proclamation of the AG.

(iii) Acts of the National Assembly. From May 1979 to January 1983, and from June 1985 to the end of February 1989, the National Assembly was empowered to legislate for central government matters in accordance with the procedures cited in (ii) above.

(iv) Ordinances of the SWAA and Representative Authorities. Both the SWAA (until its transformation into the Administration for Whites in May 1980), and subsequently the 10 Representative Authorities, legislated by means of ordinances in their spheres of activity, subject to veto by the AG, until they lapsed on 31 March 1989.

3.4 Overview of the Legislative Framework for Transport and Telecommunications

This section outlines the principal features of legislations applicable before independence to each sector, indicating whether it is of South African or local pedigree, and the extent of dependence on South Africa.

The National Transport Corporation

In 1988, the role of South African Transport Services (SATS) in Namibia was terminated, with the exception of Walvis Bay. This was effected by the National Assembly passing the National Transport Corporation Act (Act No. 21 of 1987), which provided for the establishment of a multimodal transport company, the National Transport Corporation Limited (NTC). NTC is, *inter alia*, empowered to operate the railways, the port of Lüderitz, lighthouses along the coast (except in Walvis Bay), Namib Air, road transport services (buses and road haulage), and other transport services, for example pipelines (there are none today). The NTC Act, which became effective on 1 July, 1988, in effect made the operations of these modes legally autonomous of South Africa. In July 1989, the NTC was renamed TransNamib Limited.

Roads

The Roads Ordinance, No. 17 of 1972, as amended, bestows the executive authority (formerly the SWAA and now DOT) with the responsibility to provide, maintain and control all proclaimed trunk, main and district roads and the road reserves of all proclaimed roads. This legislation, which provides complete autonomy from South Africa, originally applied mainly to "white" areas, but since the northern bantustans were brought into line by the Application of Laws Relating to Roads in Eastern Caprivi, Owambo, Kavango and

Damaraland Act, No. 5 of 1982, it now applies almost ntionwide. There are three exceptions:

(i) Although it is a second tier authority, the government of the Rehoboth Gebiet is still, for historical reasons, responsible for the construction and maintenance of roads and bridges other than trunk roads within the Gebiet. The latter are under the control of DOT. (DOT is also an agent in respect of the other roads).

(ii) The Department of Agriculture and Nature Conservation is responsible for roads within nature reserves.

(iii) Streets in municipal areas fall under the authority of local authorities. In terms of Municipal Ordinance, No. 13 of 1963, such authorities are entitled to control and manage all aspects of road planning, construction and maintenance, using funds obtained partly from the central government and partly from their own sources. Several larger municipalities exercise these powers.

Road Traffic

The central legislation affecting this sphere is the Road Traffic Ordinance, No. 30 of 1967, as amended. Though based on its South African equivalent, this ordinance is autonomous of South Africa. It consolidates the laws on all aspects relating to motor vehicles and traffic, drivers' licences, road signs, highway code, accident reporting procedures, and relevant penalties. Although the northern bantustans were originally excluded from its provisions, they were brought within its scope by the Application of Road Traffic Legislation in Owambo, Kavango, Damaraland and Eastern Caprivi Act, No. 8 of 1981.

The legislation is thus nationally uniform, although the three bodies listed as exceptions in the previous section on roads, retain the right to implement this legislation within their boundaries. Road traffic in the Rehoboth Gebiet is actually policed by DOT as elsewhere, while only four large municipalities, namely Windhoek, Keetmanshoop, Swakopmund and Tsumeb, have traffic sections for this purpose. The Ordinance is apparently due to be replaced in the near future (see below).

The laws governing road safety (the National Road Safety Act, No. 9 of 1972) and third party insurance (the Multilateral Motor Vehicle Accidents Fund Act, No. 93 of 1989), are South African Acts applicable in Namibia but administered from Pretoria.

The former Act provides, *inter alia,* for the establishment of The National Road Safety Council (NRSC) to promote road safety. In preparation for independence, the local office of this Council in Windhoek was closed down in mid-1989 and its duties transferred to the DOT. However, there have been no legal changes and it is not foreseen that the section making Act No. 9 of 1972 valid in Namibia will be repealed by South Africa before independence.

The Multilateral Motor Vehicle Accidents Fund Act, 1989, suspended operation of its predecessor, the Motor Vehicle Accidents Act, 1986, No. 84 of 1986, and the Motor Vehicle Accidents Fund (MVA) established thereunder. The new Act gives effect in South Africa and Namibia to an agreement signed in February 1989 between South Africa and the four so-called "independent" bantustans of Transkei, Bophutatswana, Venda and Ciskei (TBVC), as from 1 May 1989. Under this agreement, a Multilaterial Motor Vehicle Accidents Fund (MMF), located in South Africa, replaces the MVA and is operated as a pool by the signatories. As before, revenue derived from third party payments and fuel levies flow into the Fund, from which claims are defrayed. The new Agreement and Act appear to have no immediate effect on Namibia, as it is not a signatory, although part of the Fund. (see below)

Road Transport

The present system is still highly regulated by a South African law also applicable in Namibia and administered entirely in Windhoek. The Road Transportation Act, No. 74 of 1977, forms the centrepiece of this system. Its racially discriminatory provisions were abolished in Namibia by the Road Transportation Amendment Act, No. 29 of 1980, and in effect by the Road Transportation Amendment Act, No. 8 of 1988.

The Act provides for the establishment of Local Road Transportation Boards (LRTB), in South Africa and Namibia, to issue public and private permits for transport for hire and reward, and own account, respectively. There are 10 LRTBs in South Africa and one in Namibia. A permit issued by one board may involve roads included in other areas.

However, when the administration of this law was transferred to Namibia in 1978 through Proclamation AG 14, the jurisdiction of the Windhoek LRTB was also limited to roads within Namibia. Similarly a South African LRTB cannot issue a permit for traffic to or from Namibia without the consent of the Namibian LRTB.

Further steps have been taken during 1989 to ensure that Act 74 provides for an autonomous legal framework for the regulation of road transportation. The Road Transportation Amendment Proclamation AG 61 of 1989, thus eliminates the remaining powers of the South African National Transport Commission in respect of Namibia. This Commission previously served as an appeal body, a function which will now be performed by the Road Transportation Commission of Namibia, and could also issue permits on its own. A further anomaly which has been eliminated, was the power of an LRTB in South Africa to issue a permit pertaining to traffic between Walvis Bay and South Africa. Windhoek must now also give its consent. Road transportation in Walvis Bay is administered by the LRTB in Cape Town. Proclamation AG 61, which became effective in November 1989, also changed the name of the Windhoek LRTB to the Road Transportation Board of South West Africa.

It should also be mentioned that Act 74 has recently been used to introduce protective measures for the Namibian railways. The Second Road Transportation Amendment Act, No. 20 of 1988, thus grants the Cabinet the power to reserve certain goods for carriage by railway only. This amendment became effective in November 1989, thereby eliminating competition in all the railways' main markets from *new* hauliers and/or services. Operators with valid licences will not see these revoked. Protection will be afforded until further notice, but it is understood that the intention has been to retain it for a period of five years (see further Chapters 4 and 9).

Airports and Civil Aviation

With the exception of the Aerodrome Ordinance, No. 12 of 1963, which covers the establishment, management and maintenance of aerodromes and airfields (i.e. smaller airports), all legislation governing the control, safety and

regulation of civil aviation in Namibia is currently still South African. Although DOT administers many aspects of the four main laws in this sphere, some key functions, including all those related to aviation safety and the economic regulation of the sector, are still fully under Pretoria's control. The reason for lack of autonomy can mainly be ascribed to Namibia's non-sovereign status, i.e. that it cannot be a signatory to the relevant international conventions.

The principal Acts are:

(i) The Carriage by Air Act, No. 17 of 1946, as amended, which gives effect to the 1929 Warsaw Convention on the liability of international air carriers.

(ii) The Air Services Act, No. 51 of 1949, as amended, which provides for the licensing and control of air carriers and air services.

(iii) The Aviation Act, No. 74 of 1962, as amended, which gives effect to the Chicago Convention and the International Air Transit Agreement.

(iv) The Civil Aviation Offences Act, No. 10 of 1972, as amended, which gives effect to the 1963 Tokyo Convention on offences and related acts committed on board aircraft, the 1970 Hague Convention on suppression of the unlawful seizure of aircraft, and the 1971 Montreal Convention on the suppression of unlawful acts against the safety of civil aviation.

Regulations made under the Aviation Act govern the two state airports in Namibia (Windhoek Airport (formerly J.G. Strijdom Airport) and J.G.H. van der Wath Airport, outside Keetmanshoop), since these are the only ones which accept international traffic and must therefore comply with the relevant conventions.

Maritime Affairs

Namibia has virtually no legislation of its own governing maritime affairs. The single noteworthy exception is the Territorial Waters of South West Africa Proclamation, AG 32 of 1979, which extends the territorial waters and exclusive fishery zone to 12 and 200 nautical miles, res-pectively. This came into operation on 1 April 1981, in terms of Proclamation AG 21 of 1981. The principal South African statute governing commercial shipping is the Merchant Shipping Act, No. 57 of 1951, as amended. This law is entirely administered from Pretoria. No other South African laws in the maritime affairs sub-sector are in force in Namibia.

Posts and Telecommunications

Executive powers over Posts and Telecommunications inside Namibia were transferred from the South African Minister to the AG in terms of the Executive Powers (Posts and Telecommunications) Transfer Proclamation, No. AG 12 of 1978, while all South African statutory control was finally removed by Proclamation AG 14 of 1989, the First Law Amendment (Abolition of Discriminatory or Restrictive Laws for Purposes of Free and Fair Election) Proclamation.

However, posts and telecommunications are governed essentially by South African legislation, primarily the Post Office Act, No. 44 of 1958, as amended and applied to Namibia by the Exchequer and Audit Amendment Proclamation, No. AG 35 of 1979. This amendment transferred financial responsibility for the Department's affairs to the Directorate (now Department) of Finance in Windhoek, and made the Namibian Post Office, effectively independent of the South African equivalent. No further legislative changes are envisaged by DOPAT at this stage as part of preparations for independence.

3.5 Envisaged Legislative Changes

As stated above, change over the period since 1977 has been incremental and sometimes *ad hoc*. More recently, attempts have been made to systematise the legislation and to promote autonomy, deregulation and commercial efficiency. In the transport sector, this process had only begun by the time the National Assembly was disbanded at the end of February 1989.

At that time, the DOT had, however, already signalled its intention to replace most existing laws, particularly those of South African origin. The implementation of UNSCR 435 has not changed this course of development, but has widened its scope in that the work done by the Windhoek administration since April 1989 now also aims at ensuring a fully autonomous legal framework in the sphere of transport by the time of independence.

The DOT has also requested the AG to proclaim most of the proposed new laws before independence. This applies, for example, to the first three draft laws mentioned below, which have been in preparation for quite some time. While the AG does have the power to proclaim new legislation, it is still unknown whether he would be willing to exercise it in cases heralding significant policy changes rather than being purely technical matters, and which are not required for implementation of UNSCR 435.

Administration

(i) The Transport Tribunal Act. Work on the drafting of this Act has been completed. The Act is intended to replace the tribunal functions for civil aviation in Namibia currently still exercised by South Africa's National Transport Commission and of the recently instituted Road Transportation Commission, which is viewed as a temporary institution until the Road Transportation Act of 1977 has been repealed in Namibia (see below). It is expected that the Tribunal will also be empowered with the monitoring of the implementation of transport policies, and arbitrating in all disputes arising from this or from other transport issues. (At the end of 1989, the Windhoek administration was reassessing the need for this law for unknown reasons.)

(ii) The Transport Advisory Council Act. This Act, which is also complete in draft form, is designed to create a permanent and autonomous Namibian advisory body in respect of policy formulation and the co-ordination of service provision.

Road Traffic and Road Transport

A complete draft has also been prepared of a new *Road Traffic Act*, as well as related Traffic Regulations. This draft law is envisaged to replace the existing ordinance of the same name, and institute a quality control system in place of the present quantity (permit) system for road transport operators. These measures are intended to consolidate and streamline existing legislation and will also cover the functions previously performed by the South African National Road Safety Council in Namibia. In addition, the draft law will implement new policies aiming at the deregulation of

road transportation. The Act will therefore provide for the repeal of the Road Transportation Act of 1977, and will also include a provision for the entering into of bilateral agreements with other governments for control and regulation of transport between them. Traffic between South Africa and Namibia would naturally fall within the scope of this provision.

The proposed new law is essentially modelled on and combines the contents of *two* recent South African laws which have not yet become effective (see further the next chapter), viz. the Road Traffic Act, No. 29 of 1989 and the Transport Deregulation Act, No. 80 of 1988. The latter law, as is also the case for the Namibian draft law, provides for a step-by-step approach to the repeal of the Road Transportation Act of 1977. DOT thus envisages, for example, that the new law may only become effective in respect of domestic traffic to begin with, while international traffic will be covered by the old Act until bilateral agreements have been made with neighbouring countries. This is another reason for the introduction of the Road Transportation Commission in September 1989, which will therefore be required until the full repeal of the Road Transportation Act of 1977.

Third Party Insurance

As mentioned above, third party insurance is today covered through implicit membership of the Multilateral Motor Vehicle Accidents Fund (MMF). Applying for full membership after independence does not appear suitable as the agreement establishing the MMF is based on the view that the so-called "TBVC states" are independent states. However, plans are afoot in Namibia to establish a separate third party fund for Namibia, and a report and a white paper are expected shortly. There is little further knowledge about this work. A separate fund for Namibia is likely to result in higher fees than hitherto, as the claims levels are said to be higher in Namibia than in South Africa, which is also stated to be the reason for the lack of a separate fund for Namibia so far. Botswana, Lesotho and Swaziland have their own similar funds and legislation, and have also entered into reciprocal agreements with South Africa and each other for mutual validity.

Civil Aviation

DOT is currently drafting new laws in this sphere with the help of consultants. The aim is to prepare a complete set of laws to provide for full autonomy. The draft laws are based on the current South African ones, which are then basically adapted so that they can be used, at least as an interim measure. It is DOT's intention that the new laws should be ready so that they can be made effective at independence or by the first government of independent Namibia.

Maritime Affairs

DOT is also drafting laws in the sphere of maritime affairs. The approach used is the same as for civil aviation, i.e. existing RSA laws will be adapted. The draft maritime affairs laws, as well as the draft civil aviation laws, are likely to meet the requirements of independent Namibia.

4. RECENT DEVELOPMENTS IN TRANSPORT AND COMMUNICATIONS POLICIES

4.1 Introduction

When the transition to independence commenced in 1977, Namibia inherited highly regulated transport and communications sectors, closely integrated with the respective South African sectoral ministries and characterised by a high degree of state involvement and control. During the 1980s, however, two trends have been clearly evident. Firstly, South African policy in Namibia has enabled the gradual creation of a separate Namibian administration in preparation for eventual independence (see further Chapters 6, 7 and 8).

The second trend has been the initiation of moves towards deregulation and privatisation in transport and communications. These changes mirror closely those occurring in South Africa, where the process is more advanced. Also, reforms there are not limited to the transport and communications sectors, but are part of a much wider reform process which goes back about 10 years.

However, contemporary interest in deregulation and liberalisation is by no means restricted to southern Africa; there has been a widespread movement in that direction across much of the industrialised world and increasingly, the third world. The IMF and World Bank have been instrumental in promoting this trend as part of third world structural adjustment and liberalisation. Ultimately, the promotion of deregulation and liberalisation reflects a growing belief that such reforms promote economic efficiency and growth, and are compatible with a fair distribution of income.

It is therefore necessary to view recent Namibian developments in transport and communications policies in a wider context. The purpose of this chapter is to provide part of this background. Initially (in Section 4.2), two examples — from Europe — are given of reforms of road transportation, which parallel closely the reforms to be put into effect soon in South Africa and which have also been proposed for Namibia (cf. Chapter 3). Section 4.3 reviews the evolution of transport and communications policies in South Africa during the past decade and Section 4.4 then traces these changes on the Namibian scene.

4.2 The Issue of Deregulation

Definitions

It is as well to define and distinguish three closely related terms, all of which are frequently used in contemporary policy debates:

(i) *Deregulation*: the removal of restrictive regulations governing economic activities. In transport and communications, there are two principal types of regulations (Chapter 2):

- economic regulations, which for example limit the number of operators in particular modes of transport, on specified routes, or for the carriage of certain commodities; and
- quality regulations, which specify the conditions under which particular activities must be carried out and the standards with which operators must comply.

Both types generally exist side by side, sometimes within the same law. Increasingly, however, the international trend has been to move away from economic regulations in favour of reliance largely or exclusively on qualitative controls. Although commonly termed deregulation, it may actually include the introduction of new quality controls. The reasons for, and experience of this process will be discussed below.

(ii) *Liberalisation:* the removal of restrictive practices and laws which impede the operation of free markets. This is closely related to deregulation.

(iii) *Privatisation*: this refers to disinvestment by the state or public sector of some of its assets and activities to the private sector. These are usually state-owned and parastatal corporations, or particular activities such as the funding and maintenance of motorways, which, it is felt, can be more efficiently undertaken by private companies than the state. Privatisation is often closely associated with liberalisation or deregulation, but is clearly distinguishable from them.

Deregulation: Road Transport in the UK and the EC

Economic regulation of transport activities, such as quantitative restrictions on the number of road haulage contractors, has long been justified on the grounds that railways merit protection, and that open competition among road hauliers leads to instability in the industry, a phenomenon not in the interests of the industry or of customers. The main symptoms of this include inadequate profit margins to cover depreciation and replacement of equipment, reduced safety and increasing accident rates. Pressure to safeguard the railways and regulate the haulage industry frequently increases during times of recession, when competition for declining traffic intensifies and overall profitability declines.

The United Kingdom

Such was the situation during the Great Depression of the late 1920s and early 1930s, which led to the introduction of the 1933 Road and Rail Traffic Act in the United Kingdom (UK), for example. In terms of this Carriers' Licensing system, prospective road hauliers had to apply for one of four possible licence types, according to the nature of their envisaged business. The applicant was required to provide proof of the need for his services, while the railways and existing hauliers could object to the granting of a licence. Comparable legislation existed or still exists in many OECD countries and indeed, in South Africa and Namibia, as described in Chapter 9.

However, a number of trends since the Second World War, most notably the great economic boom and subsequent progressive reorientation of British trade towards Europe, changing transport technology and the increase in heavy goods vehicle size, the growing share of freight carried by road at the expense of rail, the lack of investment and cuts in the rail network created pressures for a more flexible system of road haulage regulation. Carriers' Licensing had become anachronistic since it no longer provided protection for the railways, and it could not be defended any longer on the grounds of economic efficiency.

Consequently, a new system, known as Operators' Licensing, was introduced by the 1968 Transport Act and became effective in 1970. All quantity restrictions on entry to the industry and on prices charged, were abolished and the emphasis was placed exclusively on quality. Henceforth, applicants have had to prove their ability to operate the service(s) for which the application is made. Numerous other regulations affecting quality and safety must be complied with. The system has proved generally effective, and far more efficient to administer.

The European Community

The 1958 Treaty of Rome, which established the European Community, requires the evolution of a Common Transport Policy. Efforts to achieve this have been hindered by conflicts of national interest and by more technical problems of harmonising rules and regulations, which vary widely between member states.

Since 1985 there has, however, been greatly increased momentum with, *inter alia*, steady preparations for the formation of a single European market in 1992. All quantitative restrictions on the movement of goods within the Community are to be abolished, while customs documentation, excise duty rates and qualitative regulations are to be standardised. Ultimately, therefore, this will be a far more deregulated and liberalised market than hitherto.

Five aspects of the deregulation of international road haulage in Europe can be distinguished, several of which have been fully streamlined for a number of years:

(i) *Prices*: International haulage rates are set in accordance with purely commercial considerations, although advisory reference tariffs are set by the EC Commission.

(ii) *Access to the Market*: Common requirements exist for entry to the market. These are similar to UK domestic quality controls, and operators must possess an international operator's licence. Quantitative restrictions in the form of permit quotas still regulate direct participation in the market and, until the mid-1980s, bilateral quotas between the major trading partners definitely restricted the growth of road haulage. However, quotas are to be phased out by 1992 through the annual enlargement of bilateral quotas and the progressive shift from bilateral to multilateral permits valid for unlimited numbers of journeys anywhere within the EC.

(iii) *Social Harmonisation*: This refers to safety regulations such as limitations on drivers' hours. Full harmonisation has been achieved.

(iv) *Technical Harmonisation*: Much progress has been made in standardising maximum permissible vehicle weights and dimensions.

(v) *Fiscal Harmonisation*: Here there is still work to be done in standardising excise duty and value added tax rates between member states.

4.3 Recent Policy Evolution in South Africa

Background

South African state policy over several decades was aimed at ensuring white and especially Afrikaner control over the economy, and using state power to establish a comprehensive welfare system for "the white tribe of Africa". The result was a racist form of national socialism, characterised by strict state control and regulation.

Long before the threat of international sanctions, economic growth was catalysed by state action. Strategic sectors and utilities were brought under state control e.g. ESCOM, the Electricity Supply Commission; ISCOR, the Iron and Steel Corporation; ARMSCOR, the Armaments Corporation; FOSKOR, the Phosphates Corporation; SOEKOR, the South African Oil Exploration Corporation; SASOL, the South African Coal-Oil Corporation; and South African Railway and Harbours (SAR&H), restyled as the South African Transport Services (SATS) in 1981.

However, by the late 1970s a number of important economic and political developments had combined to precipitate major changes in the direction of state policy. Firstly, continued economic expansion and diversification was being constrained by the limited size of the white consumer market and the shortage of skilled personnel required for the increasingly sophisticated and capital-intensive economy. Secondly, black protest and resistance had reached the point, in the wake of Soweto and other uprisings, where some form of accommodation became essential.

Thirdly, the onset of international recession had significant effects in South Africa, with rising unemployment (even among the white electorate for the first time in several decades) and increasing indebtedness in the wake of profligate and inappropriate international borrowing by the public sector. Fourthly, growing international isolation rendered the task of raising new international loans far more difficult, thus forcing more efficient utilisation of existing capital - one of South Africa's most scarce resources. Fifthly, the international resurgence of economic deregulation and liberalisation has had an impact on state perceptions, given that by 1985, public sector expenditure accounted for 38.1% of GDP and central government alone for 26% of GDP.

The result of all this has been a process of incremental economic and political reform during the 1980s. While often inadequate and contradictory, the situation today is markedly different from a decade ago.

Policy Change in the Transport Sector

The first substantial change in this sector was the restructuring of SAR&H into SATS, as — what was expected to become — a more coherent and commercially oriented multimodal organisation, by the South African Transport Services Act, No. 65 of 1981.

Informal Sector "Pirate" Taxis

A critical element of change was precipitated by the heated debate during the early 1980s on the role of pirate taxis in urban areas. These increasingly important operators ferry black workers between their township homes and workplaces. The state's gradual conversion to the merits of the informal sector was vociferously opposed by vested transport interests, most notably the SATS, operators of urban bus services and registrated taxis. The Welgemoed Commission was appointed to investigate the issue, and notwithstanding its report in 1983 favouring suppression of pirate taxis, the government actually legalised them. Since then, the former pirate taxis have mushroomed and now play a major role in metropolitan transport.

The industry's powerful umbrella organisation, the South African Black Taxi Association (SABTA), has been incorporated politically as an important element of the new black middle class fostered by state policy. An indication of their

new-found economic power is SABTA's success, in mid-1989, in persuading the government not to deregulate the black taxi industry completely, as envisaged by the 1987 White Paper on National Transport Policy (see next paragraph).

The White Paper on National Transport Policy

The National Transport Policy Study (NTPS) completed in 1984/85, provided a comprehensive review of the sector and laid the foundations for subsequent legislative changes, as embodied in the White Paper on National Transport Policy, published in January 1987 (ref. 57). The objective is to bring transport policy in line with current *national* policy through an integrated package of measures.

Essentially this is envisage to be a fully deregulated system, with quality rather than quantity controls, and the elimination of unfair obligations or restrictions which impede commercial competition on a uniform basis between SATS and private operators.

It is proposed that all infrastructural costs should be recovered from users, and that the use of cross-subsidisation between activities or transport modes should be eliminated. In other words, the "user pays" principle is to take precedence over the "ability to pay" principle. Efficiency, co-ordination and user choice are to be maximised, decentralisation of decision making promoted, and private initiative advanced. Regulations are to be systematised to enhance compliance and enforcement, while externalities are to be minimised.

Ultimately, all transport legislation is proposed to be consolidated into the following four Acts for simplicity and uniformity:

(i) *The Road Traffic Act*: To consolidate the four provincial traffic ordinances into a single Act and incorporate provisions concerning the new road freight and passenger quality systems. Once this is effective, the existing quantitative controls of the permit system will be abolished.

(ii) *The South African Transport Services Act, 1981*: This would be amended to increase SATS' managerial freedom, in conformity with the new freight and passenger transport policies. More definite proposals would be based on the recommendations of the investigation of SATS by Dr. de Villiers (see below).

(iii) *The National Roads Act, 1971*: This would be amended so as to transfer functions currently exercised by the National Transport Commission to the new National Roads Board.

(iv) *The Transport Act:* To rationalise the administration and regulation of transport. In particular, it would

(a) establish
- a Transport Advisory Council, to advise the Minister on all matters of transport policy;
- a Transport Tribunal, to monitor transport policy and to settle disputes on appeal;
- a National Roads Board, to control and administer the National Road Fund and Urban Transport Fund, and all functions currently assigned to the National Transport Commission by the National Roads Act, 1971 and the Urban Transport Act, 1977;

(b) set out the new regulatory framework for passenger transport; and

(c) amend and consolidate a range of transport Acts to bring all modes of transport into line with the new policy.

The De Villiers' Report on SATS

This report, commissioned by the government to examine how the SATS are run and to make recommendations for change in line with national policy, was submitted in July 1986 but only published in August 1988 (ref. 90). The report is highly critical, which perhaps explains the reason for the long delay in publication, i.e. so that some of the recommended changes could be set in motion beforehand.

De Villiers charges that at least R 11 billion were invested during the 1970s and early 1980s, two thirds of this on loss-making railways with no prospect of being able to generate the means to cover interest payments or repayment of the principal. The existing basis of SATS organisation and operation are anachronistic, and need radical restructuring. SATS should be split into independent operating units run on business principles, and only in areas in which it has the competitive advantage. A number of ancillary activities should be privatised.

The present British-style single board of directors should be replaced by a two-tier system, based on practice in the USA and Europe, which separates supervisory management and control from executive management. All cross-subsidies should be eliminated in favour of direct subsidy if this is felt desirable for social or strategic reasons. A transition period of three or five years is recommended for implementation of the recommendations.

Progress to Date

In the White Paper, the government accepted the NTPS proposals that the above changes be incorporated into the 1987 legislative programme. An implementation timetable was drawn up, with the objective of having carried out all aspects of the NTPS recommendations acceptable to the government, by July 1990. This included the legislative programme and all alterations to regulations in terms of various Acts, phasing out of subsidies, introduction of full cost licence fees, and the like.

For various reasons, the programme is running behind schedule, and only one Act was published during 1987. Progress to date includes the following:

(i) The Transport Advisory Council Act, 1987, No. 58 of 1987 (GG 10925, 23/09/87). Its contents are as envisaged by the White Paper. The Transport Advisory Council replaces earlier advisory committees established for individual modes of transport.

(ii) The South African Roads Board Act, 1988, No. 74 of 1988 (GG 11389, 06/07/88). Its contents are as envisaged by the White Paper, except that the Board has a slightly different name and a separate Toll Roads Committee is also established.

(iii) The Transport Deregulation Act, 1988, No. 80 of 1988 (GG 11395, 06/07/88). This provides, *inter alia*, for the continued existence of the National Transport Commission; transfers some of its functions to the South African Roads Board; deregulates road transport by repealing the Road Transportation Act, 1977, No. 74 of 1977, in so far as it regulates passenger and freight transport; and provides for the government to enter into bilateral

agreements with other countries or territories for purposes of regulating transport between them. In the event of conflicts with domestic laws, such agreements are to take precedence.

(iv) Legal Succession to the South African Transport Services Act, 1989, No. 9 of 1989 (GG 11743, 15/03/89). This provides for the formation of a limited liability tax-paying public company as the successor to SATS, and a state-owned corporation which will take over its loss-making commuter services. This Act essentially embodies the recommendations of the de Villiers' report, which go beyond those foreseen by the White Paper. Some of de Villiers' proposals were implemented as early as in 1988 when the common carrier obligation was removed, and in 1989 when SATS started to introduce cost-based tariffs.

(v) The Road Traffic Act, 1989, No. 29 of 1989 (GG 11782, 31/03/89). Its contents are as envisaged by the White Paper.

Each of the above Acts is to come into effect on dates to be fixed by the State President in the Government Gazette. SATS will be phased out by 1 April, 1990. As far as can at present be ascertained, none of the other Acts is yet in force. Full deregulation of road transportation is thus not expected to take place before 1993. However, more liberal policies for granting permits have apparently been implemented in the meantime.

A study on deregulation of civil aviation is in progress, with the final report expected in late 1989, and promulgation of amended legislation in 1990. However, the Minister of Transport Affairs announced in May 1989 that private airlines may already apply for route licences in competition with South African Airways (SAA) on its scheduled routes.

The chairman of the study committee said in August 1989 that proper deregulation would require an end to political constraints and legal privileges on SAA. He cited four principles likely to form the basis of the new Air Services Act:

- the market should resolve all economic decisions;
- all operators should be treated equally in terms of legislation, rules and opportunities;
- safety remains of paramount importance; and
- users' interests and views should remain explicit.

Privatisation of SAA after deregulation was also a possibility.

The White Paper on Privatisation and Deregulation

This document, (ref. 58) published early in 1987, views privatisation and deregulation as an ongoing process over many years. Since many people and organisations are affected, circumspection and responsibility as well as determination are urged in implementing the policy. Guidelines for privatisation are set out, and the need for continual review stressed. The document lists steps already taken towards deregulation, and activities already wholly or partially privatised.

In the transport and telecommunications sphere, the examples of privatisation are very limited:

- transport of school children;
- maintenance of private automatic branch telephone exchanges;
- provision and maintenance of all telephone apparatus; and
- maintenance of mail-sorting equipment.

The De Villiers' Report on Posts and Telecommunications

Following his investigation into SATS, Dr. de Villiers reported in March 1989 on the strategy, policy, control structure and organisation of the South African Department of Posts and Telecommunications (SAPT). He criticises overspending and financial mismanagement, not least over heavy investment in inappropriate technology and overestimation of the growth in demand for services (ref. 91).

His major recommendations are:

- restructing of SAPT into two business units, one covering telecommunications and the other postal and banking services. These are to become commercial, tax paying businesses;
- introduction of cost related tariffs and elimination of cross-subsidies; and
- amendment of the Post Office Act and related legislation in order to accomplish the above and to permit eventual privatisation.

In April 1989, draft laws were presented, according to which SAPT would be split into two "companies" for telecoms and postal services. All the shares would to held by the state, but (partial) privatisation is envisaged to take place later. A managerial restructuring of SAPT commenced at the same time. The two companies are expected to commence operations on 1 January 1991.

4.4 Recent Policy Evolution in Namibia

The Welgemoed Commission

The first step towards the formulation of new transport policy directions in Namibia was the appointment of the Welgemoed Commission of Inquiry into Transport Affairs, which reported in 1981 (ref. 85). The Windhoek administration has, however, never published the report, saying only that some of its recommendations which were acceptable to the state would be implemented as and when appropriate.

With the exception of the purchase of 51% of Namibia Airlines (Pty) Ltd. (see further Chapter 8), no subsequent changes have been clearly identified as stemming directly from the Welgemoed Report, although several recommendations have evidently been carried forward in later documents and policies. Basically, it envisaged a system of strict regulation for land transport modes in order to safeguard the position of the railways. More recent thinking and policy decisions have, however, moved in a different direction.

The Draft Development Strategy

No changes to the *status quo* occurred over the subsequent few years, and the next significant official document was the Draft National Development Strategy for South West Africa, produced by the Directorate of Development Co-ordination in 1985 (ref. 17). This set out broad sectoral goals for infrastructure, including

- optimal maintenance and full utilisation of existing infrastrucure;

- development of new infrastructure only on the basis of demonstrated need and viability in relation to both direct and indirect impacts (using cost-benefit analysis);
- giving priority to infrastructure required for development, especially in the communal areas;
- giving priority to exploitation of local resources or provision of services, ensuring local appropriateness, and maximising use of local labour, materials and resources; and
- seeking to recover quantifiable infrastructural costs from direct beneficiaries, and involving the community in planning and utilisation.

While many of these sound acceptable in principle, there are contradictions between different chapters of the document, and potential implementation problems under the prevailing institutional structures.

The Advisory Committee on Transport Services

Far more influential has been the Report of the Advisory Committee on Transport Services (ACTS), published in February 1986 (ref. 1). This was heavily influenced by the changing ideology in South Africa. Its principal recommendations may be summarised as follows:

- transport deregulation, to be implemented over a five-year period, and with protective measures for the railway in the interim;
- cost recovery from users wherever possible;
- commercial considerations as the prime determinant of the level of operations, prices, etc.;
- payment of direct subsidies by the state where it deems non-commercial services or activities desirable for strategic, social or other reasons;
- in line with this, closure of three uneconomical branch railway lines (Otjiwarongo to Outjo, J.G. Strijdom to Gobabis, and Aus to Lüderitz) and of all rail-passenger services;
- creation of an autonomous transport system and legal framework in Namibia including the spheres of civil aviation and maritime affairs;
- establishment of a multimodal transport corporation to own and operate the railways, harbours, lighthouses and other actitivities of the SATS in Namibia and Namib Air, the envisaged national airline, on a commercial basis; and
- establishment of a Transport Tribunal and of a Transport Advisory Council, both with the same type of responsibilities as their envisaged siblings in South Africa.

Progress to Date

The ACTS Report has, in fact, formed the basis of subsequent policy:

(i) Many of its institutional recommendations have already been implemented, e.g. purchase of the outstanding shares and establishment of Namib Air as the new national airline, and formation of the National Transport Corporation, now TransNamib Ltd. (see Chapter 8).

(ii) Legislative plans for the deregulation of transport are well advanced, but thus far only one preliminary measure — the power to reserve specific commodity groups for carriage by rail — has been enacted in law (Chapters 3 and 9). Other draft legislation not yet published includes the new Road Traffic Act, the Transport Tribunal Act and Transport Advisory Council Act and new Civil Aviation laws. (see Chapter 3, sections 4 and 5).

Aspects Not Yet Tackled or Implemented

The implementation programme for the reforms proposed by the ACTS is well behind schedule, as, for example, evidenced by the lack of work on legislation in the field of maritime affairs until recently (Chapter 3). Also, so far none of the branch lines have been closed down. Nor have the passenger services been terminated (Chapter 5), although they have been curtailed somewhat. However, a framework has been established for making such decisions, which gives considerable power and discretion to the board and management of NTC/TNL (Chapter 8). It should also be mentioned that little work has been done in respect of road user charges and to ascertain that the costs are being recovered from the users (Chapters 6 and 12). The same applies to airports.

Privatisation

Plans for eventual privatisation in Namibia are still at a tentative stage, given that deregulation is far from complete and that the new government may well take a radically different stance on the issue. The Privatisation Advisory Committee (PAC) was established by the TGNU in 1986 with the following terms of reference:

- privatisation of government activities (including implementation thereof);
- regulation (with the emphasis on deregulation); and
- government strategies for upliftment and extension of the private sector (including the informal sector).

The PAC has achieved little so far. Within the transport and telecommunications sectors, the only significant privatisation to date has occurred with ancillary tasks such as the installation of PABX equipment for the Department of Posts and Telecommunications (DOPAT). The maintenance, sale and hire of such equipment are the next, imminent activities to be privatised, but at present there are no plans for significant further changes in or privatisation of the DOPAT (Chapters 7 and 12).

There have been no changes so far in the transport sector. But while TransNamib Limited is at present an autonomous wholly state-owned parastatal enterprise, the possibility of privatisation is provided for in the National Transport Corporation Act, 1987, as discussed in Chapter 8. The present management regards this as unlikely for several years, until the new organisation is operating at full efficiency and is sufficiently profitable to constitute an attractive investment.

5. TRANSPORT AND COMMUNICATIONS NETWORKS

5.1 Introduction

This chapter is concerned with the facilities of the transport and communications sectors, and then primarily with the infrastructure. The institutions involved in the management and operation of these facilities will be covered in the subsequent three chapters; the demand for transport is discussed in Chapter 10. For overviews of the transport and communications networks, see Maps 1-4 at the end of the report.

5.2 The Road Network

Current Network

In 1952, Namibia had just over 10,000 km of trunk and main roads. There were no surfaced roads and very few suitable bridges. Development since then is summarised in Table 5.1. Today Namibia is served by 41,800 km of trunk, main and district roads. A further approximately 22,000 km of farm roads are proclaimed in terms of the Roads Ordinance, and are maintained by the Department of Transport (DOT) on behalf of farmers (at their request) on a 50/50 cost basis.

Table 5.1 Road Network by Road Types (km)

YEAR:	1953	1973	1989	1953-73	1973-89
Trunk Roads	3 008	3 600	4 324	+ 592	+ 724
Main Roads	7 312	9 248	8 792	+1 936	- 456
District Roads	14 336	19 627	28 684	+5 291	+9 057
Sub-Total	24 656	32 475	41 800	+7 819	+9 325
Farm Roads	24 432	25 408	21 800	1 976	-3 608
Grand Total	49 088	57 883	63 600	+8 795	+5 717

Source: ref. 15 and DOT

The roads can be divided into the following classes of roads and surfaced standards (Table 5.2). The surfaced roads carry approximately 70% of the total traffic generated in Namibia.

Table 5.2 Classes of Roads (1989)

Description	Length (km)
Surfaced	4 506
Gravel	25 197
Earth	8 831
Gypsum	226
Sub-Total	38 760
Roads proclaimed but not yet constructed	3 040
Grand Total	41 800

Source: DOT

Compared to other African countries, and seen in relation to the small population and the large size of the country, Namibia has an exceptionally well-developed road infrastructure. The country possesses more kilometres of road per head of population than any other country in Africa, including South Africa.

However, the road infrastructure is characterised by an imbalance between the modern sector of the Namibian economy and many other vast parts of Namibia with few roads. Ovamboland, the area with the highest population density with approximately 50% of the total population, has only about 5% of the total proclaimed network (and an even smaller share of the proclaimed roads which have been constructed); see Table 5.3. As a whole there is a lack of feeder roads for the development of agriculture and agro-based industries, especially in the northern parts of the country.

Surfaced roads have mainly been built either to link Namibia to South Africa or to areas of economic and/or strategic importance. South Africa is linked by bitumen surfaced roads at Nakop and Noordoewer, as well as by several other smaller roads. There are also roads to other neighbouring countries, but these are currently not used much, if at all, and are mostly unsurfaced (see further Section 5.7).

The traffic volumes are, except in certain areas of high industrial, commuter and weekend/holiday traffic, low, and very few roads carry more than 500 vpd. However, low utilization also implies low wear and tear and, therefore, low maintenance costs.

According to DOT, about 30% of the asphalt roads are nearing the end of their economic lives and will have to be reconstructed some time during the next ten years. As regards the other paved roads, there is no reason to believe that they will fall into a serious state of disrepair before the end of the century, provided that sufficient resources for maintenance are made available by the government and that heavy traffic does not increase considerably in the future.

Standards

Most of the trunk roads and some of the main roads, are surfaced. All the pavement data of these roads are stored in an extensive data bank referred to as the "pavement management system". Generally, the surfaced roads consist of surface dressings on top of natural gravel bases and subbases. Most of the unsurfaced main roads are engineered gravel roads, and the majority of the district roads improved earth roads. Roads are designed to carry a specific amount of 8 tonne axle loads and for an economic life of 20 years.

Large areas of Namibia are desert or semi-desert with their own peculiar ground formations and many other natural obstacles which are unique. The lack of essential road building materials and water make road construction in these areas extremely difficult. New techniques have therefore been developed and successfully applied by DOT.

Ongoing and Envisaged Future Activities

In 1989, the only major ongoing construction project was the paving of the main road between Outjo and Khorixas, which is due for completion during FY 1989/90. The paving of 12 km of the road from Katima Mulilo towards Ngoma was also ongoing, as well as the repair of the paved road between Katima Mulilo and Kongola. The only major design works being carried out by DOT are for the non-bitumen section of the road from Keetmanshoop to Lüderitz (Aus to Goageb).

Table 5.3 The Roads System on a District Basis (1989)

DISTRICTS	PROCLAIMED ROADS TOTAL	PROCLAIMED ROADS SURFACED (km)	NETWORK DENSITY (km/km²)	POPULATION PER TOTAL km
Bethanien	1 090	68	0.06	3
Bushmanland	691	0	0.04	4
Damaraland	1 901	25	0.04	16
Gobabis*	3 832	108	0.09	7
Grootfontein	2 043	358	0.08	13
Hereroland E	1 059	0	0.02	23
Hereroland W	918	4	0.06	21
Kaokoland	1 470	0	0.03	14
Karasburg	2 243	348	0.06	5
Karibib	909	176	0.07	12
Kavango	1 266	187	0.02	106
Keetmanshoop	2 263	233	0.06	9
Lüderitz	674	125	0.01	25
Maltahöhe	1 481	33	0.06	4
Mariental	3 577	333	0.08	7
Namaland	2 084	179	0.10	8
Okahandja	1 559	193	0.09	10
Omaruru	643	87	0.08	11
Caprivi	780	118	0.07	62
Otjiwarongo	1 647	348	0.08	12
Outjo, Kambanjab	1 837	361	0.05	6
Ovamboland	1 979	437	0.04	288
Rehoboth	1 018	152	0.07	34
Swakopmund	1 046	70	0.02	20
Tsumeb	1 157	214	0.07	21
Windhoek	2 630	344	0.08	54
TOTAL	41 797	4 502	0.05	31

* Including Aminuis
Source: DOT

The main projects envisaged by DOT for the future include the construction of a paved road

- from km 53 east of Rundu to Kongola (design ready for section up to Bagani)
- from west of Rundu along the Okavango river, 8 km (design being prepared by consultants),
- from km 12 southeast of Katima Mulilo to Ngoma
- between Aus and Goageb; and
- between Gobabis and Buitepos.

A number of rehabilitation projects, including:

- construction of climbing and passing lanes and the widening of structures and shoulders on the Windhoek/Windhoek Airport Road (no detailed design available);
- rehabilitation or resealing and, if necessary, the widening of the Keetmanshoop to Wasser road, 30 km south of Mariental (detailed design and documentation, prepared by a consultant, are almost ready).

DOT also wants to prepare a master plan for feeder roads in northern Namibia and a number of feasibility studies, e.g. of a bridge across the Zambezi at Katima Mulilo connecting Namibia with Zambia, and of a bridge across the Okavango at Rundu connecting Namibia with Angola.

5.3 Railways

Development of Railways in Namibia

The construction of railways in Namibia commenced in 1897 when the first 600 mm gauge line was laid inland from Swakopmund to Rössing. By 1901 the line was completed to Windhoek, and by 1906 to Otavi and Tsumeb. A southern system from Lüderitz reached Aus in 1906, and Keetmanshoop and Karasburg in 1908 and 1909, respectively. In 1912, the Windhoek-Mariental-Keetmanshoop line was completed, linking the two systems. Later additions were Karasburg-Nakop (linking up with the South African system), Swakopmund-Walvis Bay in 1915, the Otjiwarongo-Outjo spur in 1921, and the Windhoek-Gobabis branch in 1930 (ref. 16). The addition of the Karasburg-Nakop and Swakopmund-Walvis Bay lines were significant because the former changed Namibia's external trade from an ocean orientation to a basically land orientation, while the latter shifted the main port from Swakopmund to Walvis Bay.

Several small private railways have operated at various times, but none of them are in use at present. The Namibian network now consists of a total of 2 382 route kms. The main line runs in a south-north direction from the South African town of Upington, entering Namibia at Nakop, near the small border town of Ariamsvlei. A branch line goes to the port of Lüderitz while the main line continues northwards through the towns of Keetmanshoop and Mariental to Win-

Table 5.4 Namib Rail Network Details

SECTION	LENGTH (KMS)	MAX TRAIN SPEED (KM/H) PASSENGER	FREIGHT	RULING GRADIENT	MAX AXLE LOAD (T)	RAILS (KG/M)
Main line						
Ariamsvlei - Klein Karas	204	60	60	1:66	16.5	30
Klein K - Seeheim N.	93			1:50	16.5	30
Seeheim N - Keet'hoop	46			1:50	16.5	48x50km
Keet'hoop - Ebeneerde	214			1:60	16.5	48x190km
Ebeneerde - Mariental a)	17			1:60	16.5	30x40km
Mariental - Windhoek	274			1:66	16.5	48/57
Windhoek - km 55 b)	55	60	60	1:66	16.5	30
km 55 - km 124	69			1:66	16.5	48
km 124 - km 157 b)	33			1:66	16.5	30
km 157 - Swakopmund	216			1:66	16.5	48
Swakopmund - Walvis Bay	48			1:100	16.5	48
Branch Lines						
Seeheim N - Aus	179	40	40	1:40	15	30
Aus - Lüderitz c),d)	139	30/40	30/40	1:40	11.5	18.6/20/30
Windhoek - Airport Siding	52	-	40	1:56	15	30
Airport Siding - Gobabis d)	173	-	40	1:80	11.5	20
Kranzberg - Otjiwarongo	208	60	50	1:66	16.5	30
Otjiwarongo - Outjo	69	40	40	1:66	15	30
Otjiwarongo - Tsumeb	184	60	50	1:66	16.5	30
Otavi - Grootfontein	91	60	50	1:66	15	30

NOTES a) All relaying materials available. To be relaid by the end of 1990
b)Majority of relaying materials available. Programmed for completion by 1994
c) Relaying as cascaded materials become available
d) No ballast

dhoek, 850 kms from Ariamsvlei. The line continues through Usakos to Swakopmund and from there to Walvis Bay. A branch line from Windhoek goes eastward to the cattle ranching area around the town of Gobabis and a second branch connects with the main line at Kranzberg and runs north through Otjiwarongo to the ranching and mining towns of Outjo, Grootfontein and Tsumeb.

Details of the railway infrastructure are given in Table 5.4 and discussed in the following sections.

Track

All tracks are single and of the 1067 mm Cape gauge. Rail weight varies from the lightest section of 18.26 kg/m (40 lb/yd) up to the standard SAR rail of 57 kg/m, with some sections welded into continuous lengths. Wooden, steel and concrete sleepers are used. Axle loads of up to 16.5 tonnes can be operated on the main line, but certain branch lines are limited to 11.5 tonne axle loadings.

Systematic recording of track geometry is done by means of a track recording car hired from PLASSERRAIL (Pty) Ltd., which makes two complete transits of the Namibian network every year. This ensures that track maintenance is carried out in an economical manner, concentrating on "black spots" and not wasting resources on repetitive scheduled maintenance. Ultrasonic testing of rails is carried out utilising hand-operated trolleys carrying the rail testing equipment. The testing cycle is once every two years.

TransNamib Limited (TNL) owns 3 track tamper/liner machines, which are operated and maintained by PLASSERRAIL. These carry out all mechanised track maintenance operations. The track has been systematically maintained over the years and the main line sections must rate among the best maintained track in Africa for the volume of traffic handled. TNL operates its own ballast quarry at Aris and additional ballast is provided from contractor-owned quarries at Keetmanshoop and Rössing.

Bridges and Culverts

There are 146 bridges in Namibia with spans varying from 9 metres to over 80 metres. The longest bridge is the 281 m long bridge over the Swakop River at Okahandja.

Bridge superstructures are generally of the open deck design, the track sleepers being supported directly on the main structural members of the deck, which are either riveted steel plate girders or rolled steel I-section girders.

With the exception of the Swakop River bridge at Swakopmund, which has been subjected to the corrosive effects of a marine environment, the structural members of all bridge superstructures are in good condition with little sign of corrosion. Whilst some structures are adequate for the most severe loading category (maximum axle load 22 tonnes) used by SATS, the live load capacity of others is restricted to maximum axle loads of 15 tonnes, or in some cases, 11.5 tonnes.

Stations and Workshops

There are 22 main stations in the Namibian railway network and many more minor stations, halts or crossing loops.

The main workshop is located at Windhoek with a smaller facility at Walvis Bay and running sheds at Otjiwarongo and Keetmanshoop.

The Windhoek workshop is a modern, well equipped facility capable of carrying out major service work on locomotives,

including wheel turning, but it does not have the equipment to carry out turbo charger repairs and balancing. Wagons and coaches are also serviced in Windhoek, but the facilities are inadequate for heavy overhauls and refurbishings.

Train Control

On all lines north of Keetmanshoop, trains are controlled by means of a simple radio control system. Drivers are given permission by the controller to proceed through stations to the next designated train crossing point. The driver then repeats the authorisation back to the controller before entering the next single line section. All messages are recorded for reference purposes. Control centres are located at Keetmanshoop, Windhoek, Otjiwarongo and Walvis Bay. TNL will extend the radio control system to cover the main line section between Keetmanshoop and Ariamsvlei, currently controlled by means of Van Schoor token instruments, by mid-1990. The line from Seeheim to Lüderitz currently uses a "wooden staff" system of train control.

Locomotives

Steam locomotives were phased out in the early sixties. The main line fleet of locomotives comprised 128 diesel electric locomotives, made by GE (see Table 5.5) when TNL commenced operations on 1 July 1988. In january 1990 all the 32.000 locomotives and 4 of the 32.200 locomotives were sold, thereby reducing the fleet to 88 units. In addition, TNL has 8 locomotives which are available for cannibalisation for spare parts.

Table 5.5 Locomotive Fleet Details (1989)

Class	No	Year	Wheel Arrangement	Power (hp)	Axle Load (t)
32.000	36	1959/61	1-Co-Co-1	1475/1340	12.7
32.200	10	1966	1-Co-Co-1	1475/1340	12.7
33.400	82	1968/70	Co-Co	1605/1490	15.75
Total	128				

Source: TNL

The locomotive availability is high at 85 to 88% but the utilisation is low at about 55% due to lack of traffic and long standage times as a result of the length of the network. Of the total fleet of 88 locomotives, 12 have been leased to SATS.

Most trains run double headed and a banking locomotive is used in steep sections near Windhoek and Keetmanshoop. Some locomotives are fitted with dynamic brakes.

Although the locomotives are relatively old, about 20 years, they have been very well maintained and the working life could be a further 8 to 10 years, provided they are properly maintained and overhauled in accordance with the manufacturers' recommended procedures. All these locomotives utilise DC traction with low adhesion values, and the economies of repair, overhaul, re-engining or total replacement must be considered.

Wagons

When wagons were transferred from SATS to the National Transport Corporation (NTC) (see further Chapter 8), the types and numbers of the wagons required were apparently carefully calculated and the individual wagons were selected with great care to ensure that major maintenance would not be required on the majority of them for at least 5 years. They are all steel bodied, with the exception of the cattle wagons, and most are fitted with roller bearings and Barber-type cast steel bogies. They are on average only 18 years old.

Table 5.6 Goods Wagon Fleet

Type of Traffic	No.
Ballast	120
Abnormal Loads	1
General Goods	200
General Goods	300
Parcels	83
Grain	75
Livestock	110
Livestock	150
Frozen Products	28
Frozen Products	12
Abnormal Loads	1
Container Traffic	150
Abnormal Loads	1
Water	40
Water	4
Furnace/Diesel Fuel	7
Jet Fuel/Petroleum	33
Diesel Fuel/Petroleum	22
Petrol/Diesel Fuel	165
Sulphuric Acid	40
Goods/Guards Van	77
Caboose	5
Match Wagon B/Down Crane	4
Rail Transporter	9
Steam Heat	7
Breakdown Trains	10+1
Wheels	4
Internal Harbour and	21
Workshop Traffic	11
Explosives	2
TOTAL	1 692

Source: TNL

Approximately 50% of the selected wagons are equipped with brackets for the fitting of air brakes, and a few already have air brakes fitted.

Numerous SATS wagons still operate over the Namibian system as most traffic originates in the RSA and only some of the cargoes are transhipped (to TNL wagons) at the border. During 1988/89, an average of 1 400 SATS wagons were on TNL lines daily, with 111 TNL wagons on the SATS network.

Passenger Coaches

The total number of passenger coaches in the fleet is 205; the types are listed in Table 5.7. All passenger-carrying vehicles are made of steel and do not suffer from serious corrosion. The fleet is at present more than adequate for the traffic it can carry.

Breakdown Cranes and Laboratory

TNL owns four breakdown cranes (Table 5.8). With the exception of the diesel crane, the breakdown cranes have very limited capacity and steam operation is inefficient. With the present level of traffic and very few derailments, the craneage is adequate, but will have to be improved if the traffic increases or the standard of maintenance falls.

There is a small laboratory which is well equipped to carry out basic water analyses and certain oil analyses but requires additional equipment in order to carry out full analyses.

Table 5.7 Passenger Coaches

Type	No.
Private	1
Dining and Canteen Cars	3
Lounge Cars	1
First Class	14
First and Second Class Compo	29
Second Class	23
First and Second Class Passenger Van	5
Third Class	65
Baggage and Guards Van	14
Parcel and Guards Van	20
Official	30
TOTAL	205

Source: TNL

Table 5.8 Breakdown Cranes

Lifting Capacity	Power	Location	Age(yrs)
36t at 6 m	Steam	Keetmanshoop	68
36t at 6 m	Steam	Otjiwarongo	38
60t at 5 m	Diesel	Windhoek	25
25t at 9 m	Steam	Keetmanshoop	51

Source: TNL.

Services

The passenger train service has been reduced in recent years, but a service is still operated on all lines. The Windhoek to Gobabis service was reinstated in June 1989. All the trains operate as mixed traffic trains carrying both freight and passengers.

Table 5.9 Passenger Services

Weekly	Up	Down
Border - Keetmanshoop	3	3
Keetmanshoop - Windhoek	5	4
Windhoek - Kranzberg	5	5
Kranzberg - Walvis Bay	3	3
Kranzberg - Otjiwarongo	2	2
Otjiwarongo - Otavi	4	4
Otavi - Tsumeb	2	2
Otavi - Grootfontein	2	2
Otjiwarongo - Outjo	3	3
Keetmanshoop - Lüderitz	2	2
Windhoek-Gobabis	5	5

Source: TNL

A revised working timetable for freight trains is under preparation for issue in late 1989. This will show a fixed service of overnight trains between major centres but additional trains will be operated on demand rather than on a fixed schedule.

5.4 Ports

Introduction

The coast of Namibia runs in an almost straight line for about 1 350 km in a direction NNW-SSE. The coastline is affected to a marked degree by the major meteorological systems within the Southern Atlantic, which cause the Benguela Current to run up the entire coastline of Namibia. This current is a cool northerly current, which results in there being very little rainfall on the coast. This has created a desert region for a distance of about 100 km from the coast. Whilst the Benguela Current has caused a desert region on land, it has created one of the richest fishing grounds in the world along most of the coastline, extending to about 200 km from the shore.

The coastline contains two natural harbours, one at Walvis Bay and the other at Lüderitz. The rest of the coastline is generally straight, but is characterised by several shallow north-facing bays. These bays offer some protection against the prevailing south-westerly swell, but cannot be considered as harbours (although in the past some have been used for landing supplies using small boats). At the present time it is believed that no vessels (apart from pleasure boats that can be removed from the water) operate from any location other than Walvis Bay and Lüderitz.

The following sections describe the ports of Walvis Bay and Lüderitz, and in addition the facilities at Swakopmund (which was used as a port until 1915), and Oranjemund (which has a tanker mooring for the supply of fuel to the diamond mine complex).

Walvis Bay

Walvis Bay is situated in approximately the middle of the Namibia's coastline, due west of Windhoek. Walvis Bay Port is connected by road and rail to Swakopmund, which is in turn connected to the main road and rail systems of Namibia.

The harbour is formed by a low lying sand peninsula leading to Pelican Point. The harbour is approximately 9 km wide at the entrance and 12 km long (although the southern half is a very shallow lagoon), see Figure 5.1

The water depth at the entrance to the harbour is 20 m, but the depth decreases steadily and the approaches to the port are maintained through dredged channels.

The natural harbour provides adequate protection for the commercial wharves at the port, although at times long period swells can cause problems for vessels moored alongside. The fishing wharves are located north-east of the commercial wharves, and are more exposed to north-westerly waves. A small breakwater has been constructed to protect some of these wharves.

The commecial section of the port is administered by South African Harbours, which is an autonomous business organisation within SATS. The port contains 8 berths, with a total wharf length of about 1 400 m. The channel has been dredged to 10.05 m (below low tide Datum), whilst the berths have been dredged to 10.67 m, permitting vessels with drafts of up to 10.4 m to use the port, see Figure 5.2.

The port is fully equipped with the necessary harbour craft, storage facilities and craneage to handle the goods that are moved through the port. The wharves have 14 rail-mounted cranes, but these are largely being replaced by mobile cranes. Zinc and other ores are handled by an automated loading system, whilst other bulk materials are handled by a variety of more traditional means. The ore loader is operated by Tsumeb Corp. Ltd. and has a capacity of 400 tons per hour. Containers are offloaded by ship's gear onto trailers, which are towed to the stacking area where they are stacked

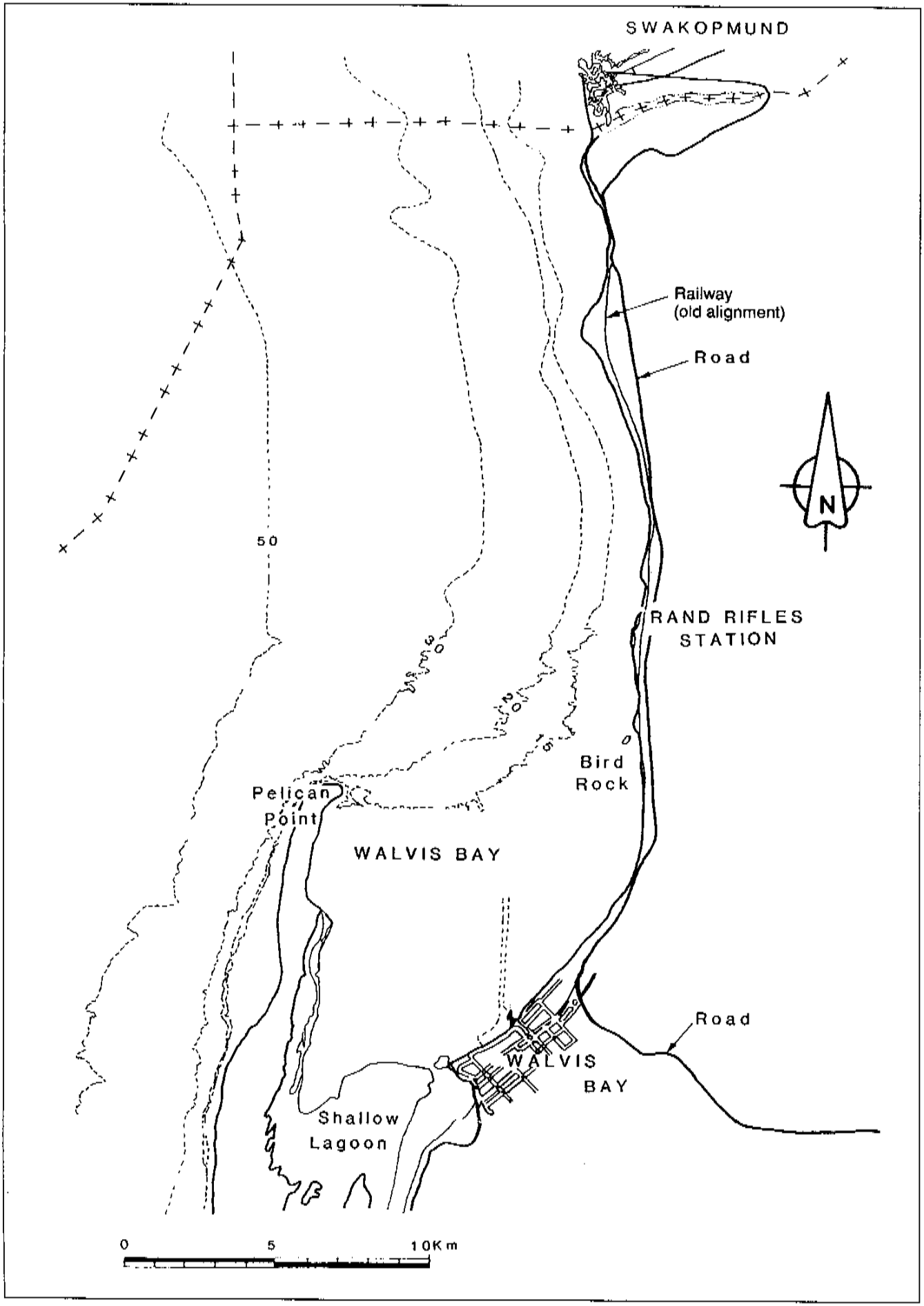


Figure 5.1 Walvis Bay

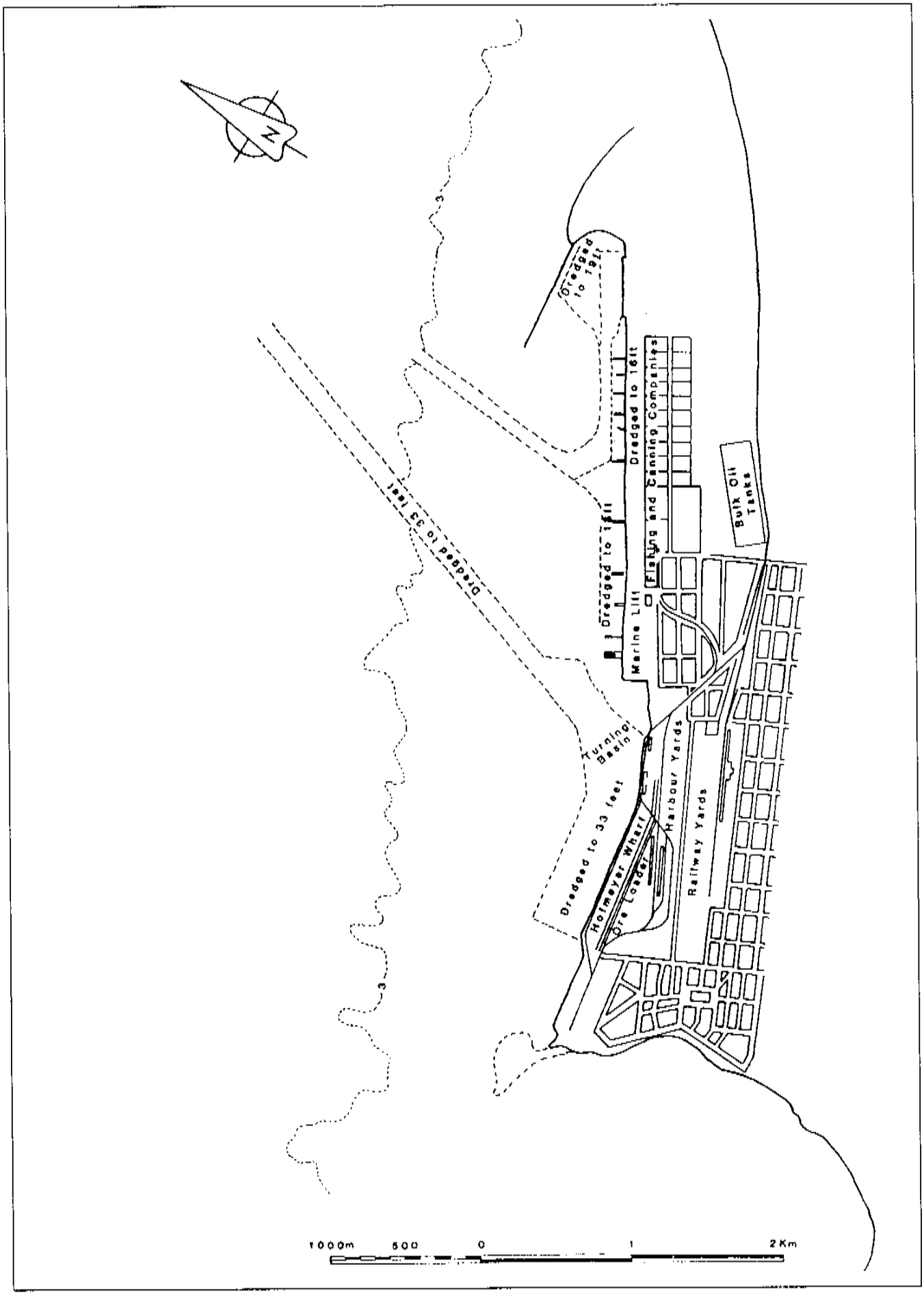


Figure 5.2 The Port of Walvis Bay

by two rail-mounted gantry cranes. It is understood that about 300 containers are handled per week (15 600 per year). The railway runs directly into the container stacking area, permitting direct loading of containers (and other cargo) onto railway wagons.

The port also contains a dolphin-type tanker jetty which can take vessels with a length between 128 m and 192 m (i.e. approx 7 000 - 25 000 DWT). The fuel is pumped to large storage tanks.

Walvis Bay is served on a regular basis — about every 3 weeks in each direction — by ro-ro ships of the Southern Africa Europe Container Services (SAECS). This consortium comprises several shipping lines, including SAFMARINE of the Safren Group. It provides links to major European and South African ports, where goods destined for other parts of the world have to be transhipped. There are weekly services between Walvis Bay and South African ports — on a liner basis — provided by two cellular container vessels belonging to the Unicorn Lines, which are also members of the Safren Group. Unicorn Lines furthermore operate two bulkships for the transport of salt from Walvis Bay to Durban. Bulk oil is also a coastal trade, presumably mostly originating in Durban, but also in Cape Town.

The port operates at about 17% occupancy, which is a very low usage factor. Assuming an average throughput of 300 000 tonnes per berth per year (for a mixture of general cargo, ro-ro and containers), the eight existing berths could handle a maximum of 2.4 million tons per year without excessive congestion. In addition, the tanker berth could handle at least 2.5 million tonnes of liquid products.

Studies have been carried out into the feasibility of deepening some of the berths to 12 m, and in 1990 SATS are planning to carry out a feasibility study into the long-term development of the port.

The port operates all the cargo handling equipment in the port, and the port railway. Stevedoring is carried out by several private companies.

Siltation is a continuing problem at the port. A dredger used to be mobilised from South Africa every few years to carry out maintenance dredging, but the port now operates a small grab dredger which is adequate for the maintenance dredging (approx 40 000 cu m per year).

To the north east of the commercial port lies the fishing port (Figure 5.2). This has a total wharf length of about 2 500 m, with several fish canning and processing factories located behind the waterfront. The wharves and factories are owned by private companies. At the south-west end of the fishing harbour there is a shiplift, with associated repair jetty, operated by the Cape Provincial Administration. The shiplift can handle vessels up to 79 m long with a weight of up to 2 030 tons.

Many private companies provide back-up services for the repair of vessels using the port, and for stevedoring, etc. The town of Walvis Bay has a population of at least 20 000, and is steadily expanding around the lagoon to provide holiday homes.

In conclusion, Walvis Bay is a well run, efficient port that can provide all the facilities required for the import to and export of materials from Namibia. The water depth in the port restricts the size of vessel that can use the port, but the quantity of bulk materials being handled at present does not demand or justify larger vessels. The present occupancy of the berths (17%) is very low, indicating that an increase in trade could be accommodated with the existing facilities. The port is well connected to the road and rail infrastructure of Namibia.

Lüderitz

Lüderitz is located approximately 400 km south of Walvis Bay, and 250 km north of the southern border of Namibia. The coastline in this area is generally rocky, with low hills leading straight down to the sea. The area around Lüderitz contains several bays and islands, but the commercial harbour and the jetty are located within Menai Creek, which is protected from the prevailing swell by Shark Island (see Figure 5.3). Occasionally, heavy swell from the north-west can cause problems for vessels using the jetty. There are three islands in the Bay claimed by South Africa, viz. Seal Island, Penguin Island and Halifax Island.

Lüderitz is connected to the road and rail systems of Namibia, via Seeheim. The railway runs directly into the port area.

The water depth at the anchorage in Lüderitz Harbour (between Angra point and Shark Island) is approx 16 m, whilst the depth in the inner harbour (Robert Harbour) is 7.5 m. The depth within Menai Creek is less than 3 m, so a dredged channel has been formed to provide access to the jetty. This channel was dredged to 6.1 m, but a recent survey has indicated that siltation has occurred in places, and the minimum depth at present is 5.5 m. It has been estimated that approximately 34 000 cu m of silt would have to be dredged to restore the original sea bed levels (see Figure 5.4).

The offloading facilities consist of two jetties at the south end of Menai Creek. The main jetty is 242 m long by 19.5 m wide. The outer 92 m has been dredged to a water depth of 6.1 m, whilst the remainder of the jetty has a smaller draft. The jetty, which is constructed in reinforced concrete supported on circular concrete piles, was extended to its present size in 1968, and is in good condition.

Crane tracks are installed on the jetty deck, along which run two ancient 4 t electrically operated quay cranes. Three railway lines also run down the jetty. The jetty is provided with water, fuel oil and electrical services.

The other jetty is a wooden structure, constructed in about 1963. It is 168 m long, with a depth alongside of up to 3.5 m. A survey carried out in 1988 by SATS indicated that about 35% of the piles were in poor condition, and the cost of maintenance was estimated at R 80 000. This jetty is only used by fishing boats at present.

The port area is fairly confined, being bounded by a road and the town. An area of about 40 000 sq m is available at the head of the jetty, which is at present used for railway sidings. This area also contains a goods shed 78 m long by 11 m wide, and two small oil tanks operated by oil companies. A third oil tank is located in the railway station area, and each tank is connected to the jetty by a 3 or 4 inch pipeline. The total oil storage capacity is about 1 600 cu m. The port area also contains a certain number of small offices and stores.

The port is equipped with one 780 hp tug, constructed in

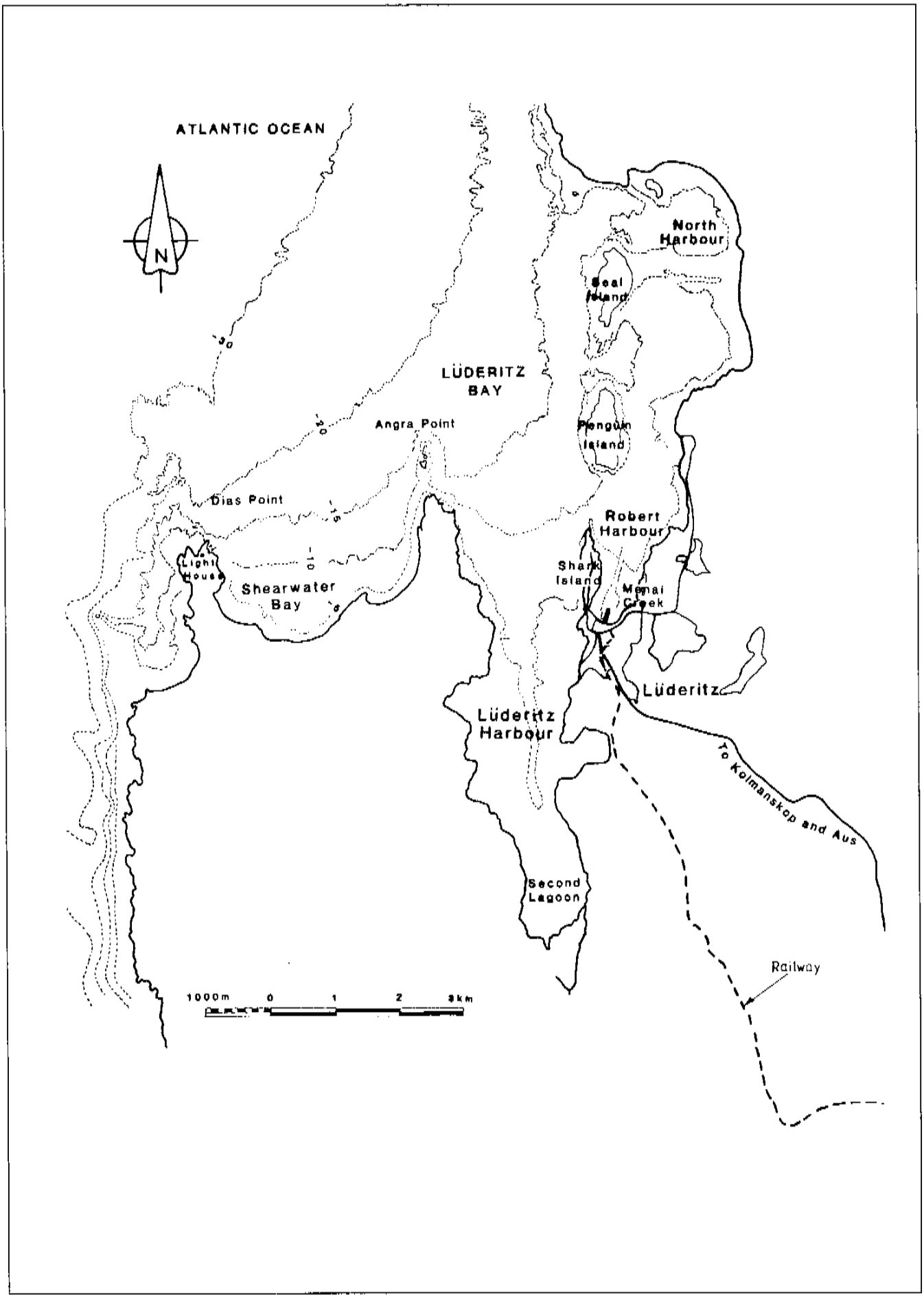


Figure 5.3 Lüderitz Bay

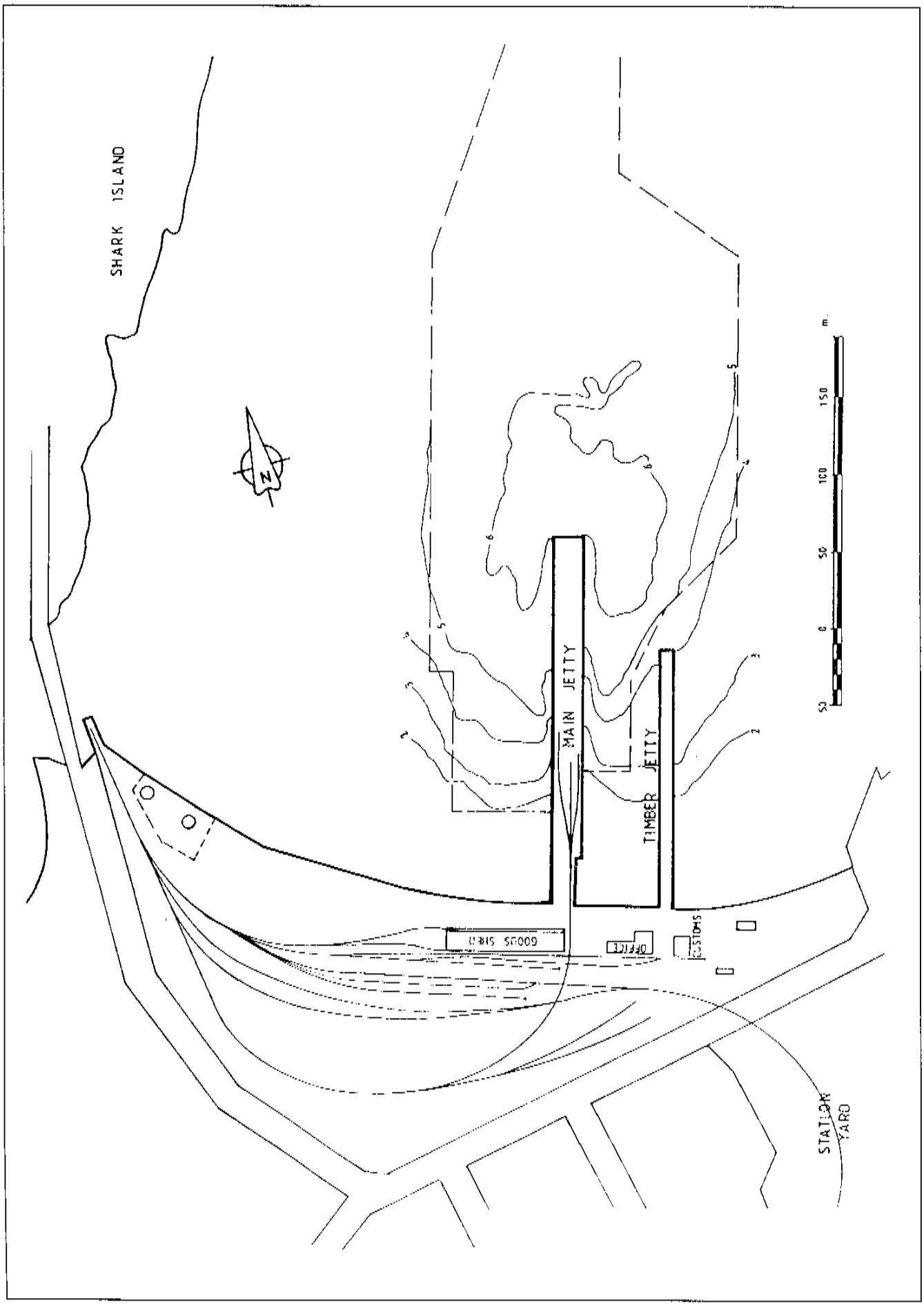


Figure 5.4 The Port of Lüderitz

1939. This tug has been well maintained, but must be reaching the end of its useful life. The port also has a 250 hp launch, constructed in 1963, and five 150 ton lighters.

Cargo handling on the jetty is by ships gear or the two quay cranes. The only other cargo-handling equipment operated by the port is a small fork lift truck and a tractor (also used to shunt railway wagons).

The marine side of the port is directed by the Port Captain, who is also the Pilot. He is assisted by an experienced Tugmaster and a Marine Engineer, and by 10 junior personnel. The Port Captain has instituted a training programme for the junior staff.

Cargo handling is under the direction of the Station Master/Ports Goods Officer. This staff, which includes 2 foremen, 6 clerical staff, 7 operators/technicians and 17 labourers, also handles the trains operating to and from Lüderitz.

Lüderitz harbour is used by two fishing companies, mainly for rock lobster (crayfish). Each company has its own jetty near its factory and its own repair facilities, including small slipways (one 400 ton capacity, the other 150 ton).

The most regular shipping service to Lüderitz is by the Oranjemund, operated by Unicorn Lines from Durban and Cape Town, which calls about 18 times a year. This vessel is designed for small harbours such as Lüderitz, and is a combined general cargo/tanker. The Oranjemund has a length of 61 m, a breadth of 12 m and a maximum draft of 4.4 m. Other small coasters call at the port, and occasionally larger vessels call on their way to or from Europe. Vessels longer than 110 m, or with a draft exceeding 5.75 m have to anchor in the harbour and be handled by lighters. Vessels with a draft of up to about 7.5 m may anchor in Robert Harbour (the inner harbour), whilst larger vessels anchor in the outer harbour between Angra Point and Shark Island (the travelling time for lighters from this anchorage is about 20 minutes).

The port is used as a base for offshore diamond exploration, and for the gas fields off the southern coast of Namibia.

In conclusion, the Port of Lüderitz is a small, under-utilised port that is well run. Facilities exist for the handling of small coastal vessels, although this will be jeopardized unless the harbour is redredged in the near future. Safe anchorage exists for larger vessels, which can be handled by lighterage. The capacity of the port could be expanded by the provision of modern cargo handling equipment, but the expansion of the port in its present location is constrained by the limited area of land available. No facilities exist for handling bulk cargoes or liquid products (except in small quantitites for local use).

Swakopmund

Swakopmund is located approximately 30 km north of Walvis Bay, and was the site of one of the first settlements when founded by the Germans in 1892. The site was chosen not because it was a good site for a harbour, but because Walvis Bay had been occupied by the British and there was a route into the interior. The coast at Swakopmund is straight, and offers no natural protection.

Initially, all cargo was landed on the beach, but between 1898 and 1903 a mole was constructed from concrete and stone. The mole is 375 m long, and was used for offloading lighters (which were loaded from cargo vessels anchored in the open roadstead). However, siltation around the mole started immediately, and by 1905 it was no longer possible to use the mole for offloading.

A wooden jetty was constructed in 1904-1905, but was demolished in 1916. In 1912, the construction of an iron jetty was commenced, which was planned to be 640 m long. Construction was halted by the First World War, with only 262 m completed. This jetty is still standing, but the ironwork is highly corroded and it can only take foot traffic.

Since 1915 all cargo traffic has been handled at Walvis Bay, and the sea front of Swakopmund has been redeveloped into a holiday resort. Any future commercial port development there would be out of keeping with the present use of the sea front.

Oranjemund

There is a large diamond mine at Oranjemund, about 7 km north of the Orange River and 4 km from the coast. The Orange River marks the southern boundary of Namibia. No landing facilities exist, but a tanker mooring has been installed about 3 km offshore in about 18 m of water. The mooring is connected to the shore by a submarine pipeline.

No details of the installation are known, but it is understood that about 30 000 tonnes of fuel oil are imported each year through the tanker mooring.

5.5 Air Transport

Airports and Airfields

The Department of Transport (DOT) is responsible for aviation-related functions at 15 airports. Of these, 2 are termed state airports, viz. Windhoek and J.G.H. van der Wath in Keetmanshoop, both of which can handle commercial jets.

The other 13 are called aerodromes, including Eros in Windhoek, Lüderitz, Grootfontein, Ondangwa, Ruacana, Rundu, Mpacha (at Katima Mulilo), Tsumkwe, Mariental, Gobabis, Kamanjab, Karibib and Operet. Several of these are not served by scheduled airlines. There are 11 additional airfields certified by the DOT in Pretoria but operated by other departments, municipalities or privately. The two airports at Swakopmund and Oshakati, which are operated by local authorities, and the private airport in Tsumeb have scheduled services.

The South African Air Force (SAAF)provided air traffic control, airfield services, meteorological services, logistical support, personnel support services, emergency services and passenger and cargo handling services at four aerodromes, previously used and operated by SAAF (Grootfontein Ondangwa, Rundu and Mpacha) until the end of 1989, when these services were withdrawn. All the installations at these aerodromes have been provided by the SAAF. The Windhoek administration is currently examining ways for how to provide these services in the future. The airport in Walvis Bay — Rooikop — can handle medium sized commercial jets, and is also used by SAAF; see further Map 1.

Runways and landing strips are generally of good standard in terms of capacity and safety. The larger airports have paved runways, but the vast majority are made of gravel or sand. Terminal areas, buildings, passenger handling facilities and workshops of any significance exist only at Windhoek, Keet-

manshoop, Grootfontein and Eros airports. These facilities are sufficient and of a high standard. The availability and condition of mobile equipment is so far acceptable, but difficulties are foreseen due to an ageing fleet and a shortage of funds. Runway lighting systems are modest and exist only at a few airports. No airport has any precision approach and landing system, probably on account of favourable weather conditions. The ICAO Air Navigation Plan for the Africa/Indian Ocean Region (ref. 32) calls for precision systems at Windhoek, van der Wath and Lüderitz airports. In view of an expected increase in international traffic at Windhoek, the installation of an instrument landing system (ILS) is called for (see further Chapter 14).

The crash and rescue services at the major airports satisfy all ICAO requirements and the personnel are well trained. The search and rescue service is organised according to the ICAO plan. The Regional Co-ordination Centre is in Cape Town and Windhoek Flight Information Centre serves as a sub-centre. The north-eastern part of Namibia belongs to the Pretoria Search and Rescue Region. The quality of the function is reported to be good.

Airport Planning

For Windhoek airport (built 1965) and Eros aerodrome (built in the early 1930s) there are detailed master plans for future development that were made by consultants on behalf of DOT about 10 years ago. An Airport Plan was furthermore approved in 1975 according to which a network of regional, and first and second order airports were to be constructed. Three new airports were constructed under this plan which, however, was shelved in 1980 due to a rescheduling of national priorities.

DOT is currently engaged in an investigation and evaluation of the need for a national network of public aerodromes. The basic idea is that the entire country should be covered by a network of aerodromes built according to a standard to be established by DOT. DOT is also considering arranging for this network of small airports to be maintained by road maintenance units.

Airspace Organisation and Air Traffic Services

ICAO's Air Navigation Plan indicates that most of the airspace falls in the Windhoek Flight Information Region (FIR); some airspace falls in various South African FIRs, and vice versa. This arrangement in no way inhibits the exercise of sovereignty by an independent Namibia over its airspace, providing control procedures are established in a letter of agreement between the agencies involved.

Controlled airspace within Windhoek FIR comprises one airway and Windhoek control area, Windhoek terminal area and Windhoek control zone. Controlled airspace or aerodrome traffic zones are established at the four airports in northern Namibia, operated until recently by the SAAF. Within Windhoek FIR, there are four advisory routes and four information routes.

The Area Control Centre (ACC) for Windhoek FIR is located in the control tower at Windhoek airport. Air traffic control or aerodrome flight information service is exercised by staff of DOT at the two Windhoek airports and at Keetmanshoop, while the SAAF provided such services until the end of 1990 at the four aforementioned airports in northern Namibia.

All air traffic control in Namibia is procedural as there is no radar equipment available. The two Windhoek air traffic control towers and therefore also the Windhoek area control centre are modernised and have modern equipment.

Radio navigation facilities consist of five very high frequency omnidirectional radio beacons (VOR), two of which are military installations, two distance measuring equipment (DME) and 22 non-directional radio beacons (NDB). This seems to be acceptable for the present traffic, but VOR is the international standard and the ICAO plan calls for VOR/DME at Lüderitz too. In view of this, a new plan for radio navigational installations should be developed. Windhoek ACC is also equipped with a very high frequency direction finder.

Windhoek FIR is covered by six very high frequency (VHF) radio stations, and a high frequency (HF) radio station is available as back-up. The entire FIR is not covered at all flight levels, which should be adjusted in the future but seems acceptable at present. Some of the VHF stations have outdated equipment and must be replaced soon. The ICAO plan calls for a VHF radio station at Lüderitz too.

Windhoek ACC has teletype connections with Johannesburg and Bloemfontein communication centres and with Grootfontein, Keetmanshoop and Upington control towers. Windhoek ACC also has direct speech circuits to Johannesburg ACC and Cape Town ACC.

Meteorological offices are installed at Windhoek and Keetmanshoop. The facilities seem to be fairly simple but well-suited to the existing traffic and weather conditions.

Aircraft and Air Services

There were 220 Namibian civil aircraft in 1988. The majority of these are single engine piston aircraft, and 40 aircraft are gliders and microlights. Namib Air, the putative national carrier (see further Chapter 8), has a fleet of three Beech 1900 (19 seats) and one Cessna 404. It also operates one B737 on wet lease from SAA and two aircraft (Convair Metropolitan and DC-3) owned by a mining company. Namib Air is a full member of the International Air Transport Association (IATA). The other main operator, Hire & Fly, provides charter services for small groups. It has a fleet of 25 aircraft, mainly Cessna 210 and 310.

Namib Air currently operates the following routes:

- Windhoek-Johannesburg (B737)
- Windhoek-Cape Town (B737)
- Eros-Keetmanshoop-Lüderitz-Alexander Bay (South Africa)-Cape Town (Beech 1900)
- Eros-Tsumeb-Rundu-Katima Mulilo-Johannesburg (Beech 1900)
- Eros-Maun (Botswana)-Katima Mulilo (Beech 1900)
- Eros-Tsumeb-Oshakati (Beech 1900); and
- Eros-Swakopmund (Beech 1900).

Air Botswana operates with an ATR42 turbo prop once a week between Gaborone and Eros, via Maun, and Zambia Airways provides a weekly service between Lusaka and Windhoek airport with a B737 via Gaborone. South African Airways (SAA) provides four weekly services to Johannesburg with B737s and Airbus and two to Cape Town with

B737s. SAA also operates twice weekly between Johannesburg and Frankfurt via Windhoek using B747. Safair Lines, a Cape Town-based regional airline, owned by the omnipresent Safren Group, flies the Walvis Bay-Alexander Bay-Cape Town route three times a week using a Convair.

Namib Air and Hire & Fly have their own maintenance bases at Eros aerodrome. The main maintenance and repair shop for small aircraft is Westair. It is based at Eros and has high standard facilities and equipment for routine maintenance. Major overhauls are carried out abroad.

5.6 Maritime Facilities

TNL owns and is responsible for the operation of 7 lighthouses along the Namibian coast, viz. at Lüderitz, Swakopmund, Farilhao Point, Cape Cross, Toscanini, Terrace Bay and Mowe Point. The lighthouse at Pelican Point at the entrance to Walvis Bay is operated by SATS. TNL operates these lighthouses for its own account. Maintenance of some of the lighthouses has been contracted out to SATS, the previous owner until the transfer of these installations to Namibia in 1985 (see Chapter 8).

The lighthouses are also equipped with non-directional beacons (NDB) for air navigation. Some of the installations are old and deteriorating rapidly, and therefore have to be re-equipped. Some of the beacons have also already been closed down.

At present, all shortwave marine communication is via Walvis Bay Radio, with a repeater station at Lüderitz. Walvis Bay, which is operated by the South African Post Office (SAPT), maintains a 24-hour service. The repeater station in Lüderitz, which is maintained by DOPAT, can be used by local personnel to contact vessels approaching the port. The port of Lüderitz has its own VHF radio for short range communications.

The Directorate Sea Fisheries in the Department of Agriculture and Nature Conservation operates two vessels, which belong to the Windhoek administration, for fishery protection services. One boat is currently for sale and the other is a fishing trailer. No other services, such as search and rescue, coast guard or pollution control, are provided along the coast. The South African National Sea Rescue Institute, which is a private organizaation, provides sea rescue services within the Walvis Bay harbour area.

5.7 Land Transport Routes to and from Neighbouring Countries

In addition to the above-mentioned road and rail links with South Africa, there are several other routes to other neighbouring countries. Most of them have so far only been used on a very small scale, if at all. These routes include (i) a road connection to Angola providing access to Lubango, the Mocamedes Railway and the port of Namibe, (ii) a ferry connection providing access to Zambia and other SADCC-member states, and (iii) two roads to and from Botswana.

Angola

The transport infrastructure in southern Angola has suffered considerably during the war years, but is still partially functional. When the security situation improves, the transport corridor from the port of Namibe to S:a Clara on the Angola/Namibia border could become an alternative route for Namibian import and export traffic.

There are two ports within the Baia de Namibe: the commercial port of Namibe, previously known as Mocamedes, which is located in the south-eastern corner of the bay and the mineral and oil port of Sacomar, which lies in the north-eastern corner of the bay. No customs facilities are available at present in Namibe, as the two ports are only served from other Angolan ports. The anchorage in Baia de Namibe is good, with an easy approach from the sea. The minimum depth in the approach is 10.5 m to the commercial quay port and 23 m to Sacomar.

The commercial port consists of a gravity wall stone quay 875 m in length with a depth alongside varying from 3 m at the inner end to 10.3 m alongside the outer 480 m. The quay apron is 20 m wide and equipped with rail tracks plus electric cranes on the deep-sea quays.

There are two cargo sheds, with a total area 7 200 sq m, behind the deep-sea berths, and a modern cold store with a holding capacity of 3 200 tonnes is located adjacent to the port.

The pavement of the quays, port roads and storage areas is in a very poor condition due to settlement and wear. The railway tracks, both on the approach line from Sacomar and within the port, are in a poor state of repair.

The port of Sacomar was constructed as an iron ore loading terminal for the Jamba and Cassinga mines in 1968. The installations are located about 10 km north of Namibe and comprise a 325 m x 18 m jetty in prestressed concrete on piles/caissons. The depth alongside is 19 m. There is an access bridge of 200 m x 12 m.

Although the mines have been closed since 1975, the ore-loading system has been retained. The loading capacity is 3,500 tonnes per hour, and the storage yard has a capacity of 1 800 000 tonnes in four stacks. The ore loading reached a maximum in 1973 when 6.2 million tonnes were exported.

At present, the facilities at Sacomar are used as an oil terminal with a separate berth for tankers which is connected to the tank farm by pipeline. The seven cylinderical tanks have a combined capacity of 30 150 tonnes of different oil products. There is also a facility for the reception of LPG.

The railway line connecting the ports of Namibe with the hinterland is still known as the Caminho de Ferro de Mocamedes (CFM). A regular service operates between Namibe, Lubango and Matala.

The line from the Port of Sacomar to the Cassinga iron ore mines was completely relaid in the period 1966-68 using 90 lb/yd rails and locally produced timber sleepers laid on stone ballast. The Chela-Lubango-Chanja loop line was not relaid, and still consists of 60 lb/yd rail on old steel or timber sleepers and little or no ballast.

The railway is fully dieselised with a mainline fleet consisting of 16 GE U-20-C (2180 hp) and 19 Krupp H 1500 (1445 hp) locomotives supplied in 1966 and 67. Many of the locomotives are out of service at present, but all except four can be repaired when spare parts and the necessary technical assistance are made available. In addition, CFM has 10 diesel hydraulic shunting locomotives.

CFM has a fleet of over 1 400 wagons, mainly consisting of mineral wagons which were supplied to transport the iron ore from the mines to Sacomar. The majority of these are in good condition. However, the 17 passenger coaches are in a poor state of repair.

The railway headquarters are at Lubango along with a large well-equipped workshop foundry. Train control is by means of a lineside open wire circuit to all stations from the Control Centre at Lubango. This system was installed in 1966 and is in good condition, operating over the section between Sacomar and Matala.

The road from Namibe via Lubango to the border with Namibia, has a 6 m paved carriageway with 1-3 m — mainly gravel — shoulders. The distance to Lubango is 187 km and from Lubango to the border at S:a Clara 440 km. There are no customs or border facilities at S:a Clara.

The section to Lubango was bitumised in 1972-74 and is in fair condition, although no maintenance work has been done in recent years. The road is basically sound, but there are a few bad patches which need to be repaired.

Part of the road from Lubango to the border, constructed in 1964-66, are in fair condition and parts in very poor condition. Since 1974 there has been virtually no maintenance, and several sections require repair. Only the small bridges over the numerous creeks, which have been destroyed in the war, have been replaced. In total there are over 150 km of this route where speed is restricted to less than 30 km/h due to the collapse of the road formation or war damage.

The major problem of the route to and from Angola is the bridge over the Cunene River, which was blown up and destroyed for the second time in 1984. The main span is totally down and replaced by a Bailey bridge. The other three main spans are broken in the middle, and a bypass with two Bailey bridges has been arranged. Only one-way traffic is possible and the maximum axle load on the Bailey bridges is 5 tonnes.

Zambia

At a point about 6 km west of Sesheke in Zambia there is a ferry service for crossing the Zambezi River. The carrying capacity is about 45 tonnes. One ferry was in operation in mid-1989, while a second ferry was inoperative. The service is operated by Zambia, and is "on call". The crossing time is about 5 minutes. The landing site on the south-western side is also in Zambia, but less than 1 km from the border. A border post has been established recently, and customs services are provided.

Sesheke is linked to the main road network of Zambia at Livingstone by a 195 km bitumen surfaced road, generally to 6 m but in some places to 5-5.5 m. The road has been poorly maintained and is in need of repair, resealing and in places reconstruction. About 60 km west of Livingstone, there is another ferry service, to Kazungula in Botswana, which makes use of the same type of ferries as at Sesheke.

On the Namibian side, the road is surfaced through Eastern Caprivi. The route through Western Caprivi is a gravel road, originally built for military purposes. All bridge structures are in place. From Bagani there is a gravel road, and at 53 km east of Rundu a newly constructed bitumen road is reached. The gravel sections of this road can be used by all kinds of vehicles, provided that intensive maintenance work is carried out.

Botswana

Some of the supplies to Eastern Caprivi have, for many years, been brought in via the bridge across the Chobe River at Ngoma, where there is a border post. Customs services are also provided for movements via this route. Ngoma can be reached from Gaborone via the main road to Francistown and Kazungula, and from Bulawayo via the road to Victoria Falls and Kazungula. All these roads are bitumen surfaced to 6 or 7 m and of high or good standard.

From Kazungula, the first 7 km are bitumen surfaced and in good condition. The remaining 58 km to Ngoma are an engineered gravel road, with a width of 7 to 8 metres. The bridges across the Chobe River are one-lane structures in good condition and able to carry normal truck loads.

On the Namibian side, there is a gravel road of good standard. The distance to Katima Mulilo is 66 km; the last 12 km of the road are being improved, as mentioned above.

From Botswana, it is also possible to reach Namibia via Maun, Ghanzi, Mamuno, Buitepos to Gobabis. The Nata to Maun road (300 km) is a gravel road with varying pavement standards. Tenders for the reconstruction of the road were received in mid-1989, and the works are expected to be completed in the first part of 1992.

The Maun to Ghanzi section partly consists of a reasonably good gravel road, while other sections are sandy and of poor standard. West of Ghanzi and to the border, the road is mostly sandy and of very poor standard. On the Namibian side, the stretch between Buitepos and Gobabis consists of a 103 km gravel road of high standard while 16 km are bitumen surfaced. The road needs realignment for the last 36 km before the border. The road between Ghanzi and Gobabis is used for commercial traffic today, but increased use will necessitate upgrading.

A feasibility study has been carried out for a new road between Sekoma, Ghanzi and Mamuno and the report was submitted in November 1989. Sekoma is linked to the main Botswana road network by a bitumen road. The proposed road is accorded high priority by the Botswana government, although finance is not yet in hand. The feasibility study indicates a high economic viability. It could be ready by the mid-1990s and would then, *inter alia*, provide a competitive alternative to rail transport between Namibia and South Africa, as it would reduce the road distance between Johannesburg and Windhoek by 450 km.

5.8 Telecommunications

General

The structure of the Namibian telecoms network is shown in Map 3, indicating manual and automatic exchanges, the trunk network, including microwave radio links and physical trunk lines. There has been a rapid expansion of the telecoms network since the 1960s as shown by Table 5.10

The total number of telephones was about 73 000 in 1988 which implies that there were about 5 telephones per 100 inhabitants. The telephone density expressed in terms of direct exchange lines is about 3 per 100 inhabitants. Compared to

Table 5.10 Development of the Namibian Telecoms Network

	1962*	1980	1988
Number of telephone subscribers	13 168	32 444	46 193
Number of telex subscribers	0	598	1 014
Physical trunklines (km)	14 734	26 542	31 367
Carrier circuits and microwave (km)**	55 793	836 990	1 719 743

* Includes Walvis Bay
** Excluding broadcasting circuits
Source: Annual Reports for Namibian Posts and Telegraphs and for DOPAT.

other developing countries, including neigh-bouring countries in southern Africa, Namibia has a well developed telecoms network. Density in the SADCC-states ranges between 0.6 and 1.4 direct exchange lines per 100 inhabitants. However, the telephone service is mainly available to and used by the modern sector of the country, as evidenced by the fact that 40% of all subscribers are located in Windhoek.

Telephone Network

The telephone exchanges in Namibia are a mixture of old manual exchanges and automatic exchanges. In mid-1989, there were 18 automatic exchanges and 134 manual, of which 77 were so-called theoretical exchanges (see below). The number of exchange connections was 13 500 via the manual exchanges and 34 258 via the automatic exchanges. The annual increase in the number of subscribers has been about 5% in recent years.

Three digital telephone exchanges are in operation: one in Windhoek, one in Rehoboth and one in Swakopmund. Three digitalized Remote Subscriber Units (concentrators) are connected to the exchange in Windhoek. According to the standardisation of exchange equipment, the digital exchanges are Siemens EWSD. About 35% of the subscribers connected to automatic exchanges are served by these digital exchanges. The electromechanical exchanges comprise Siemens S8M plus F8M and Plessey Motor Uniselector. A substantial amount of the exchanges are old manual switchboards. In the far north of the country, all exchanges are manual. However, plans are underway to replace some of them by digital exchanges (see below).

Direct dialling facilities are available from all subscribers at automatic exchanges to 65 countries, 57 overseas and 8 in Africa.

There is one primary centre in Windhoek which also acts as a national centre for Namibia. It is connected to the international Switching Centres in Johannesburg and Cape Town. *Hence, all international traffic is routed via South Africa.* Windhoek is furthermore directly connected to six other primary centres in South Africa.

During 1990, Windhoek will be upgraded to an international exchange and the connections to the primary centres in South Africa will be rerouted through the two international centres. This will lead to an increase in the practical capacity between South Africa and Namibia.

Within Namibia, there are six secondary centres: Tsumeb, Swakopmund, Mariental, Gobabis, Keetmanshoop and Otjiwarongo. There are also four tertiary centres: Grootfontein, Rehoboth, Lüderitz and Okahandja.

The network in Walvis Bay is operated by the Cape Province Branch of the SAPT.

Trunk Network

The trunk network is a common resource for all telecommunications services (telephone, telex, data, etc.) and consists of various transmission systems interconnecting towns and villages.

In 1975, a programme was launched to extend the South African microwave system to Namibia. At that time only 99 two-way channels existed between the two countries, giving rise to long delays. At present, the following long distance backbone of microwave radio links exists:

- Windhoek - Keetmanshoop - South African border;
- Windhoek - Otjiwarongo - Tsumeb;
- Windhoek - Walvis Bay - Swakopmund; and
- Windhoek - Okahandja.

The last link to be completed was the one to Tsumeb, which was commissioned in 1988. Some circuits of the microwave link are leased to the South West African Broadcasting Corporation (SWABC).

In 1986, an additional microwave link (1 800 channels) between Windhoek and Keetmanshoop was put into service. This resulted in considerable relief from congestion as the circuits to South Africa increased by 110%. About 1 200 circuits are now in service between Namibia and South Africa.

Extension of the backbone system towards the north is ongoing and work on the link between Tsumeb and Oshakati/Ondangwa commenced in 1986. On account of the flat terrain, an optical fibre cable is being laid. Due mainly to lack of funds, progress has been slow, but the link is now scheduled for completion in 1990. Between smaller towns and villages, carrier systems relying on open wires are used. The capacity is continuously increased according to the need. The HF radio link between Windhoek and Katima Mulilo was replaced in September 1985 by a 522 km physical trunk route on open wires from Rundu.

Rural Telecommunications

Namibia has extensive rural areas where at present telecommunications are poorly developed. Subscribers are served by open wire farm lines or by radio.

In 1988 there were about 6 000 farm line subscribers. Most of them are connected on a party line basis with up to ten subscribers on a very long single pair of open wires.

A minority are connected to subscriber carrier systems on open wires. The party line subscribers are usually connected via FDM - transmission equipment concentrators, so-called theoretical exchanges. One concentrator can serve up to ten party lines, i.e. up to 100 subscribers. This system, which has been developed and manufactured in South Africa, is very old and no spare parts are available today for the older generation of rural carrier systems. Within a few years the system will therefore collapse. The replacement of the party line system by a subscriber carrier system is estimated to cost USD 28 million, while a shared system would cost USD 10 million.

The HF radio telephone system provides services routed

through the Walvis Bay radio station, thereby giving full access to the public telephone network. There are about 700 subscribers relying on these services in remote outposts, particularly in the north.

Telex Network

There is one telex exchange in Namibia, located in Windhoek. The exchange is a Siemens TW 39, of 1939 model, and was installed in 1967. Due to the age of the exchange the quality of service is inadequate.

In 1988 there were more than 1 000 subscribers, with about two out of three located in the Windhoek area. Subscribers outside Windhoek are connected on a line basis via FDM plus TDM concentrators to the trunk network. Sometimes, telex multiplexors are used in order to concentrate several subscribers to one trunk circuit. The demand for telex services started to fall in 1988/89, which reflects increased use of fax machines.

Data Communications

There are more than 300 subscribers to data services, using leased lines. There is also a separate public switching packet network, which has been installed recently. This network is leased from SAPT. It is primarily designed for very large users of data services and is integrated with an identical public data network in South Africa and other countries.

Traffic Monitoring and Supervision

Specialised equipment is being used in electromechanical exchanges to monitor usage and hold times of trunk routes and junctions of the national network, and to identify suspect and faulty circuits. The monitoring of the digital exchanges is centralised to the Operation and Maintenance Centre (OMC) in Windhoek, which was commissioned in 1986. All microwave links are monitored in Windhoek as well.

Demand

The demand for telephone calls within the country has been growing at about 4% p.a in recent years, while the rate of increase in international traffic has been much higher at about 15% p.a. The traffic to and from countries other than South Africa only constitutes about 3% of the international traffic.

Equipment

Telephone exchanges and transmission equipment are of European origin, but are manufactured on licence in South Africa. On account of special design features, this often makes Namibia dependent on South Africa, and alternative supply sources may entail much higher costs. Another problem is that some equipment is becoming outdated so that spare parts are no longer available on the market. This problem could be overcome by replacing some functioning equipment with new equipment, and by then using the replaced equipment to obtain spares and equipment for expansion in other places. Telephones, poles, wires, cables for local line plant and consumables are also of South African origin.

The repair of specialised equipment, e.g. printed circuit boards is mainly done in South Africa at the manufacturers. If necessary or warranted, this routine can only be changed in isolated cases after independence, by consigning them by air to the overseas parent company, without incurring additional costs.

Planning and Investment Programme

No master plan for the telecommunications system exists, and consequently there is no strategy or any firm objectives for the telecommunications in the long run. However, a flexible 5-year plan has been elaborated by DOPAT identifying major essential projects. The individual projects in this plan are envisaged by DOPAT to be realised on a priority basis depending on the availability of funds and skilled manpower.

The 5-year plan currently includes the following projects:

- replacement of two manual exchanges in Oshakati and Ondangwa by three Siemens digital EWSD;
- replacement of the electromechanical exchange in Tsumeb by a Siemens digital EWSD. The equipment recovered is to be used to extend the existing electromechanical exchanges throughout the country;
- replacement of the manual exchange in Rundu by a Siemens digital EWSD;
- provision of an optical fibre cable system between Tsumeb and Oshakati/Ondangwa. Work is in progress, but for financial reasons the progress is rather slow; and
- provision of an optical fibre cable system between Tsumeb and Rundu via Grootfontein;
- provision of international connections via satellite or a terrestrial system through Botswana;
- replacement of the obsolete telex exchange in Windhoek;
- provision of farm line telephone services in the Katima Mulilo area;
- provision of an open wire trunk route between Grootfontein and Tsumkwe in Bushmanland; and
- replacement of the farm line system, now based on party lines.

Some of these projects are discussed further in Chapter 14.

The Telecoms Network of the Neighbouring Countries

This section briefly reviews the telecoms systems of the neighbouring countries of Angola, Botswana and Zambia, with which Namibia does not have any direct connections at present. The focus is on the components of these systems near Namibia. The current structure and anticipated future development of the international trunk network in the SADCC region, which is part of the PANAFTEL network, is shown in Figure 5.5. (PANAFTEL was initiated by ITU in the mid-sixties and aims at the establishment of a backbone transmission network in Africa. It is being realised by means of terrestrial radio microwave systems.)

The Kalahari part of Botswana is at present underdeveloped as regards telecommunication services. HF systems are serving a few locations, including Ghanzi. Ghanzi has a manual telephone exchange for local service.

Under Botswana Telecommunication Corporations's (BTC) current Main Development Programme (MDP), telecommunication services will be extended to the rural areas. A contract has been signed with a Norwegian firm for the supply, installation and testing of a digital radio link system to connect Ghanzi via Maun as well as Kasane to the existing backbone transmission system in Francistown. The system to Kasane is nearing completion. The new system to Ghanzi will be ready for service in 1991. Ghanzi will at the

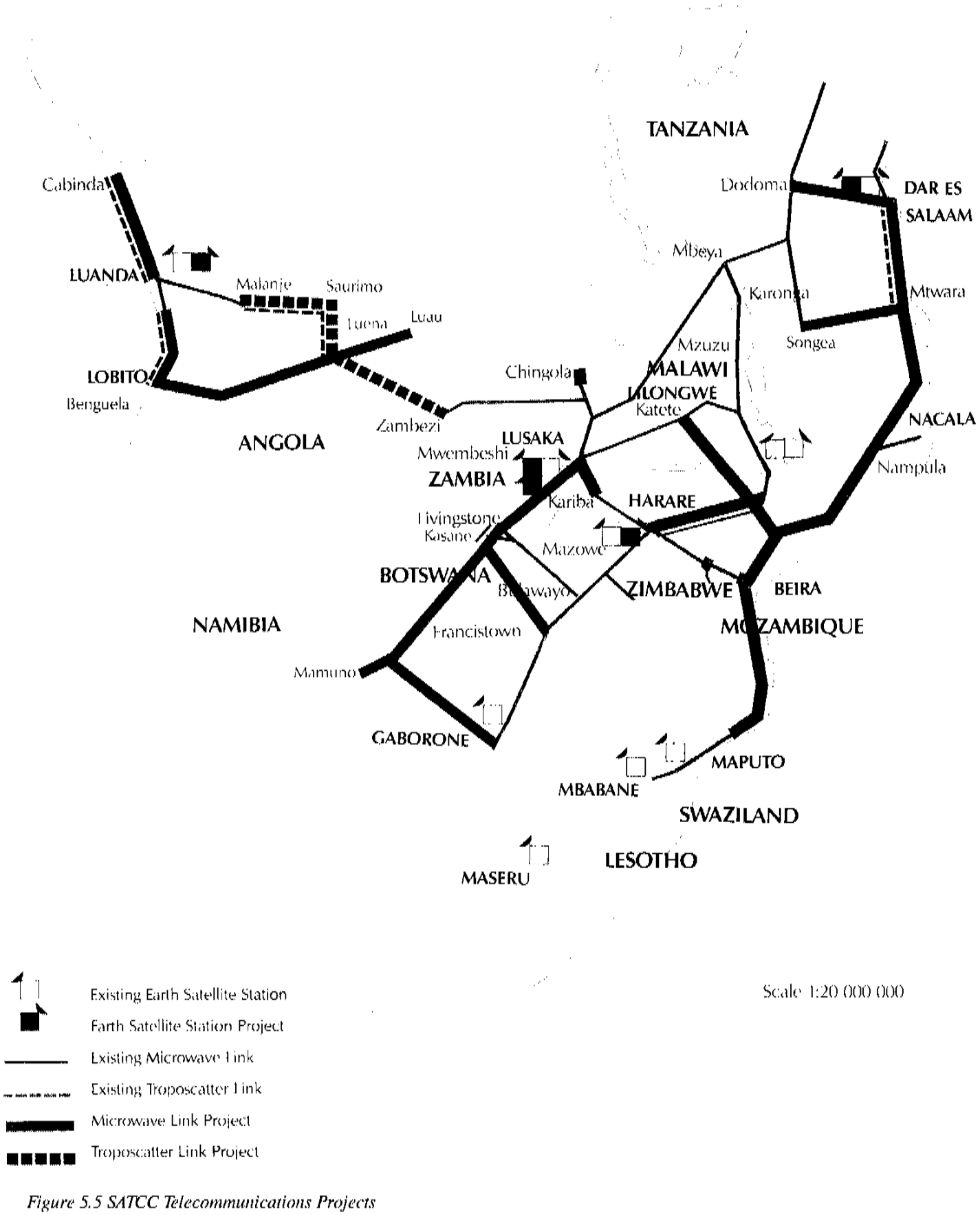


Figure 5.5 SATCC Telecommunications Projects

same time be provided with a new digital telephone exchange.

Thus, by 1991 there will be a high capacity transmission system connecting Ghanzi via Francistown with the PANAFTEL network with international telephone exchanges in Gaborone, Harare and Lusaka. A (standby) routing of Namibia's international telecommunication services via one of the international exchanges in these locations is possible, provided a connection is established to Namibia's network (see further Chapter 14). It would also be possible to make use of such a route to reach Katima Mulilo via Kasane, thereby providing an alternative to the open wire line from Rundu. However, a link would then also have to be provided between Katima Mulilo and Kasane.

The situation in Angola is still characterised by the ongoing civil war. Important parts of the national network have been destroyed, and many areas are inaccessible due to the hostilities, preventing Enatel, the Angolan telecoms operator, from reestablishing the damaged systems. Enatel has therefore had to construct a number of troposcatter systems to secure service to some locations in the national network.

At present, telecommunication services close to the border of Namibia are available in Ondjiva (50 km from the Namibian border), which is served by a 60 channel troposcatter system connecting Ondjiva with Lubango. In Lubango there is a 4 000 line telephone exchange. Lubango is in turn connected with Luanda as well as with Namibe, which has a 3 000 line telephone exchange. An analogue transmission system operates between Namibe and Lubango. The reliability of the system in Southern Angola is reported to be very low.

Angola has for the time being no terrestrial transmission systems stretching into Zambia, and it will be some time before such systems are established.

In Zambia, the trunk network links Sesheke, on the northern bank of Zambezi across from Katima Mulilo, with Livingstone. Livingstone is one of the junctions of the PANAFTEL network providing access to, *inter alia*, the internation exchanges in Gaborone, Lusaka and Harare.

There are two earth stations in operation in Lusaka and a third one is due to become operational in 1992. At present there is serious congestion as far as international traffic is concerned. For this reason an extension of the exchange is planned, which will be operational in 1991.

A microwave radio link between Kasane and Livingstone is under construction and will be completed in 1990. The link is a 34 Mbit/s digital with a capacity of 480 channels, and will connect with the existing link to Lusaka and to other regional backbone links in Botswana and Zimbabwe (see above).

A microwave radio link between Sesheke and Livingstone is planned to replace inadequate existing circuits. It was scheduled to be commissioned during 1989 but construction work has not yet started. The reason is that the original plan envisaged it to be an analog 960 cannel link, but the evolution of the technology towards digital technique has brought up the question of whether two digital 34 Mbit/s links would not be more appropriate.

5.9 Post Office Network

In mid-1989, DOPAT operated 89 post offices, of which two were mobile; see Map 4 at the end of the report. Some of the offices — generally located in the north — do not offer the full range of services. There are thus 9 postal agencies, which do not provide any savings bank or money order services. However, 3 of these are also telegraph and telephone agencies. A further 8 offices are called postal and postal order agencies indicating that they offer no savings facilities.

The dominant role played by the modern sector of Namibia is demonstrated by the fact that about 50% of the postal employees work at the offices in Windhoek. However, most of the recent expansion in office facilities has taken place in Eastern Caprivi.

Long-distance dispatches of mail are handled by SAA, Namib Air, TNL road und rail transport services, and in certain instances where public conveyance is not available, by private contractors. Most of the mail to and from other countries, including much of the mail to and from South Africa, is routed via Johannesburg. Use is also made of the SAA route between Windhoek and Frankfurt. The main sorting centre is in Windhoek while Keetmanshoop serves as a sorting centre for the south. Some mail is also sent directly to and from South Africa by air, road and rail.

DOPAT has a sizeable vehicle fleet (almost 500 units), which also is used for conveying mail and parcels over shorter distances. The number of articles posted at Namibian post offices has decreased in recent years.

5.10 Conclusions and Recommendations

Generally speaking, the Namibian infrastructure is of a high standard. The main emphasis in the near future should be on its maintenance. However, improvements in a short to medium term are probably warranted for: (see further Chapter 14)

- rural roads, in particular in the north;
- road connections with neighbouring SADCC-member states;
- the telecoms network in the northern parts of the country;
- international telecoms links, and;
- the port of Lüderitz as well as its rail and road links.

There is unlikely to be any scope for building new railways, including links with other countries, in the foreseeable future. As discussed in Chapters 8 and 11, there is instead a need for concidering a reduction of the railway network. The civil aviation infrastructure will not require any significant expansion for quite some time.

The equipment used in the two sectors should — in general — not result in undue dependency on South Africa for the supply of spares and services. Although much of the equipment has been manufactured there, spare parts are available from other sources, although sometimes at a much higher cost in view of special South African design features and the current customs duties. In a medium to long-term perspective, the supply of spares is primarily a question of

establishing new routines and networks, and in the end of the prices paid in different markets.

The international postal services, in particular for other African countries, are heavily dependent on the Johannesburg route. However, new facilities are planned to be constructed in Harare, which could strengthen Harare's position as an international sorting centre for the SADCC Region as well as a transit centre for all types of international traffic. Provided adequate air services are established between Zimbabwe and Namibia after independence, there will eventually be two alternatives for serving the SADCC Region. Also, international air connections with Europe can be expected to increase after independence, enabling increasing use to be made of European transit centres.

6. THE DEPARTMENT OF TRANSPORT

6.1 Introduction

The Department of Transport (DOT) was established on 1 July 1980, with the objective of administrating "transport matters and the establishment of effective road and air connections for the entire territory". The reorganisation of DOT was completed during FY 1980/81. It comprised the take-over of (i) the road construction activities of the Department of Constitutional Development in Damaraland, Ovamboland, Kavango, Caprivi, Bushmanland, Hereroland and Namaland, (ii) the Roads and Law Administration Branches (pertaining to roads, road traffic and road transportation) of the SWAA (which was also responsible for the trunk roads in the "homelands"), and (iii) of the divisions of Water, Aviation and Meteorological Services from the Department of Economic Affairs.

The DOT currently operates all the functions normally performed by a ministry or a government administration in the fields of roads, road traffic/road transport and meteorology (see also Appendix 3). It performs vital functions in civil aviation, including airports, but its mandate and capacity in this field are subject to limitations. Maritime affairs, as mentioned before, is entirely under the control of Pretoria, and DOT in effect has no day-to-day responsibilities in respect of ports, railways, lighthouses and potential pipelines, as TransNamib Ltd. (TNL) reports directly to the Cabinet. Its role in respect of the domain of TNL activities is limited to major policy issues involving legislative changes.

6.2 Functions in the Roads Sub-sector

Roads

DOT is involved in all activities related to the construction and maintenance of roads (except in municipal areas). This is an area where Namibia has long traditions. Roads were originally handled by the Works Branch of the SWAA during the period between-the-wars. A separate Roads Branch was established in 1952, a year which also marked the initiation of the construction works for the roads system.

DOT is particularly strong in such areas as materials, design, road maintenance and the planning of maintenance activities. It operates a very sophisticated management information system, primarly designed for the maintenance of paved roads. One module of the system, for gravel roads, relies on data processing facilities in South Africa, but otherwise DOT is self-sufficient as regards its operation and use.

The maintenance management information system is an indication of the high technological level at which DOT staff work, as well as the capital intensive approach, to the construction and maintenance of the road network. However, as Namibia is a developing country, it can sometimes be questioned if this approach is warranted from an economic point of view (cf. ref. 15). It also makes the sector vulnerable, on account of increased reliance on specialised competence and key staff members.

DOT appears to be weaker in planning. Although DOT prepares five-year development plans for the road network, these appear more to be *ad hoc* formulations of strategies rather than embodying a systematic approach to the development of the road network. There are no economists general planners and policy analysts in DOT.

DOT has a very high level of self-sufficiency in road maintenance and, on account of reduced construction activities in recent years (see further Section 6.7), it has also largely become self-sufficient in construction. The role of private contractors for undertaking larger road construction projects, as well as private consultants for preliminary and final design works has been scaled down in recent years.

DOT has its own — huge but aged — fleet of machinery for road maintenance and building, estimated at a replacement value of R 400 million in 1988. It operates a well-equipped central workshop in Windhoek. Minor repairs are mostly undertaken by this workshop as well as 10% of the repair and reconditioning of heavy equipment. The remaining 90% are undertaken by the private sector, which also carries out preventive maintenance of equipment.

Road Traffic

In road traffic, DOT handles all the normal functions in respect of licencing of vehicles, drivers and instructors. For the certification of vehicles, DOT operates 18 permanent road worthiness centres; it also operates mobile centres. In addition, DOT has its own traffic police to supervise the adherence to ordinary traffic regulations, including speed limits and to control such aspects as overloading of vehicles and the operation of vehicles according to issued licences and certificates. The ordinary police are empowered to enforce these regulations as well, but apparently never do.

Road Transport

The work of the Road Transportation Board (RTB), i.e. the economic regulation of road traffic, is administered by DOT. This work involves the granting of private and public permits for trucks, buses and taxis. As mentioned, the system is stringent and therefore involves considerable administrative work (see further Chapter 9).

6.3 Functions in the Civil Aviation Sub-sector

Normal functions of a civil aviation administration comprise qualitative and economic regulation. Qualitative regulation refers to the operation of aircraft, licencing of personnel, provision of airfields and air navigation, facilities and services. Economic regulation includes regulation of scheduled and non-scheduled air services, establishment and enforcement of air fares and rates and facilitation matters. Appendix 3 provides further details, as well as data on the functions currently handled by DOT.

As DOT does not administer all aspects of the civil aviation laws (see Chapter 3 and Appendix 1), it is currently not responsible for all these functions. Also, due to a shortage of competent personnel, it has inadequate capacity to undertake certain tasks that it is charged with. The division of work between Windhoek and Pretoria is at present:

(i) All international co-operation, i.e. bilateral air service agreements, concessions for international flights, ICAO matters are the responsibility of Pretoria.

(ii) Economic regulation of domestic and international flights is the responsibility of Pretoria.

(iii) Registration of Namibian aircraft is done in the South African registry. there is no separate registry for Namibia.

(iv) Standard-setting for aviation safety and services is performed in Pretoria. All standards are the same as in South Africa.

(v) Licencing of aviation personnel, aircraft, airfields, airlines, maintenance and repair shops etc. is the responsibility of South Africa.

(vi) Inspection of licenced airfields, operators and personnel is provided by South Africa with some assistance from DOT.

(vii) Incident and accident investigations are the responsibility of and are performed by Pretoria.

(viii) Calculation and approval of approach and departure procedures are performed by Pretoria.

(ix) Editing and printing of Aeronautical Information Publication (AIP) and aeronautical maps and flight calibration of navigational aids are performed by Pretoria.

(x) Formal training of air traffic controllers and advanced training of avionicians, technicians, firemen and operations specialists etc. is done in South Africa.

(xi) Overall planning of the civil aviation sector, e.g. of airfields and air navigation services is the responsibility of DOT but is lacking owing to of shortage of personnel.

(xii) All other functions are performed by DOT.

6.4 Meteorology

DOT is also responsible for providing meteorological services in Namibia, to the government departments and the private sector. Weather forecasts are made available to the air traffic service units at Windhoek Airport and Eros Aerodrome. Two live area forecasts are transmitted twice daily over the Afrikaans service of the SWABC, while the English service is provided with forecasts by telex. DOT appears to be reasonably well equipped in meteorology and is in a position to provide most of the assigned services. However, some of the meteorological stations previously provided by the SAAF in the north are viewed as important to the quality of the services (cf. Chapter 5). DOT relies on South Africa for computer processing and for training (National Diploma courses in Meteorology).

6.5 Organisational Structure

The organisational structure of DOT is shown in Figures 6.1 - 6.3. DOT was reorganised in May 1987 by reducing the number of directorates from 5 to 3. The previous Directorates of Planning and Civil Aviation and Water Traffic were abolished and functionally integrated into the following three directorates: (i) Roads; (ii) Mechanical; and (iii) Transport Regulation and Auxiliary Services. The reasons for the reorganisation are unclear. The DOT is headed by a Secretary and each Directorate by a Director.

The Roads Directorate

The Roads Directorate is responsible for planning, construction and maintenace of roads, drainage structures, and airports and aerodromes (maintencance limited to run- and taxiways). There are five divisions for: (i) Maintenance (North), (ii) Maintenance (South), (iii) Road Construction (departmental and under contract), (iv) Planning and (v) Materials and Management Systems; each Division is headed by a Chief: Engineering Services.

The two maintenance divisions each have two regional offices and a number of district offices throughout the country; see Figure 6.2. A district office may have more than one permanent base for its operations. Maintenance work is done by units, which undertake specialised tasks, e.g. bridge maintenance, regravelling, grading, etc. These units often have their own mobile maintenance base. Maintenance of government airports and airfields (except buildings and equipment) falls under the two maintenance divisions.

In the Road Construction Division, there are several units specialised in various fields, e.g. asphalt roads, gravel roads and bridges. Two of the units are currently involved in the construction of the road to Khorixas, while other units are based throughout the country. Some units are undertaking work in Eastern Caprivi for the moment. This division is also responsible for the building of airports.

There are no construction works ongoing under contract at present. The last contract, for the road from Rundu to Takwasa (53 km east of Rundu) was completed during September 1988.

The Division Materials and Management Systems comprises two sub-divisions. The Pavement Management Subdivision develops and operates the pavement management system, a traffic counting system, and management information systems for gravel roads and airports.

Division Planning is responsible for the planning of the road and airport network, design, the setting of geometrical standards and the control of work done by consultants, as well as the management of DOT's computer system (based on a HP 1000 mini-computer). There are four sub-divisions. Airport planning is done in the small sub-division called Planning and Design. The Planning Division is also responsible for the Directorate's functional manpower training.

Directorate Mechanical

The objective of this directorate is to ensure the availability of road construction and maintenance equipment. It is divided into a Supply and a Maintenance Division. The former is responsible for the acquisition of new equipment and the latter for the maintenance of DOT's mobile equipment, comprising about 3 700 units.

There is a Maintenance of Airport Equipment Sub-division in this Directorate, which is responsible for the main-tenance of mechanical and electrical equipment at airports, as well as navigational aids.

Directorate Transport Regulation and Auxiliary Services

This directorate has a Transport Regulation Division with three sub-divisions which all are involved in aviation. The

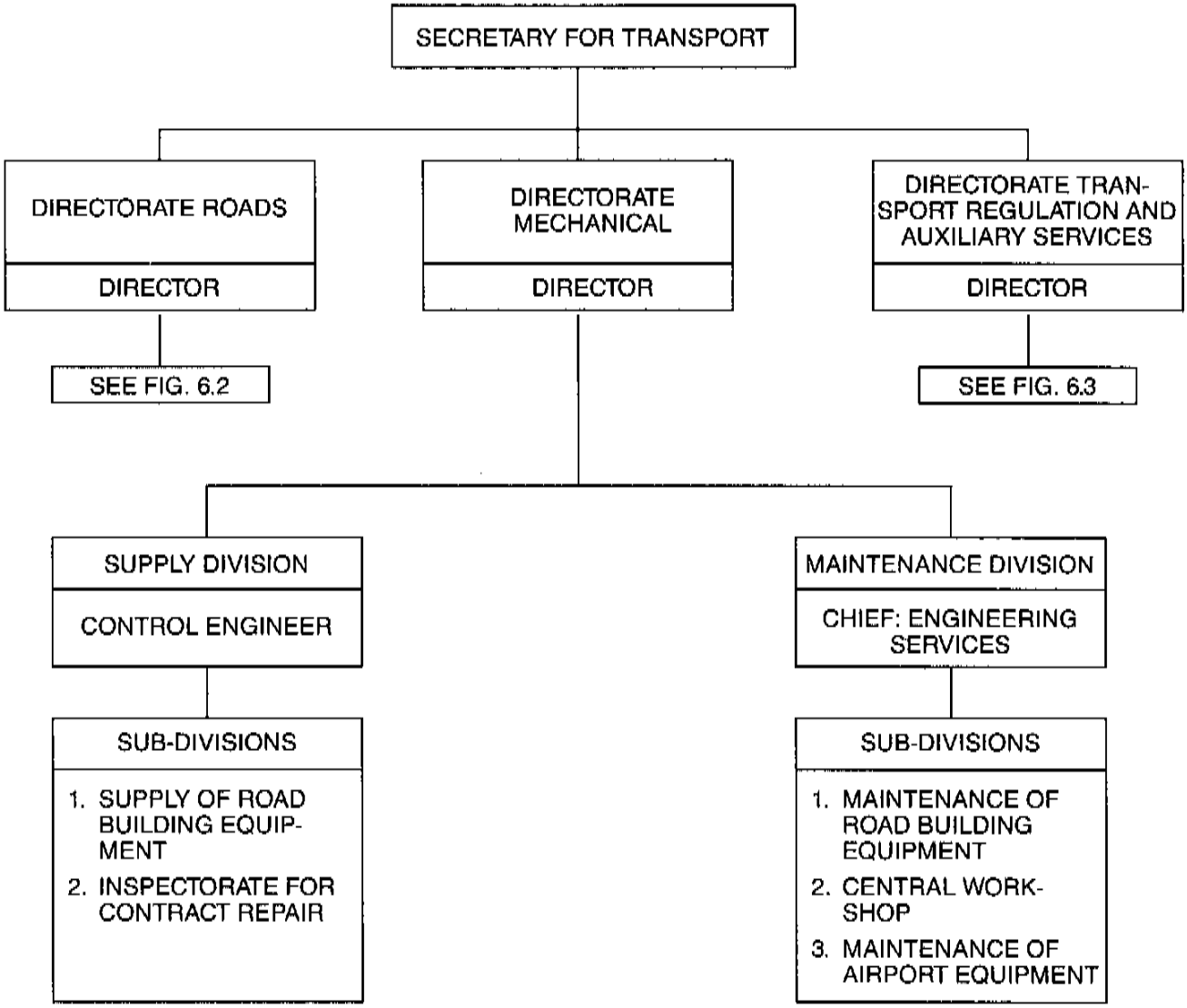


Figure 6.1 DOT Organization Structure

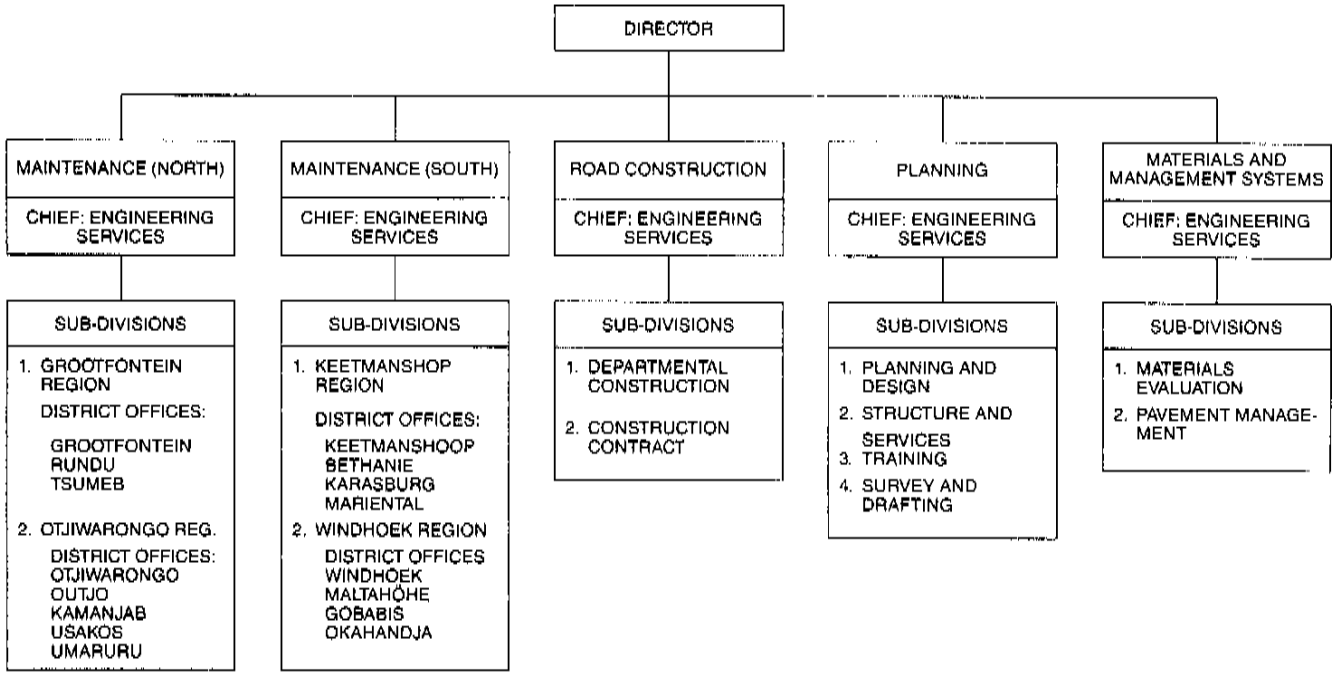


Figure 6.2 Organization Structure of DOT Directorate Roads

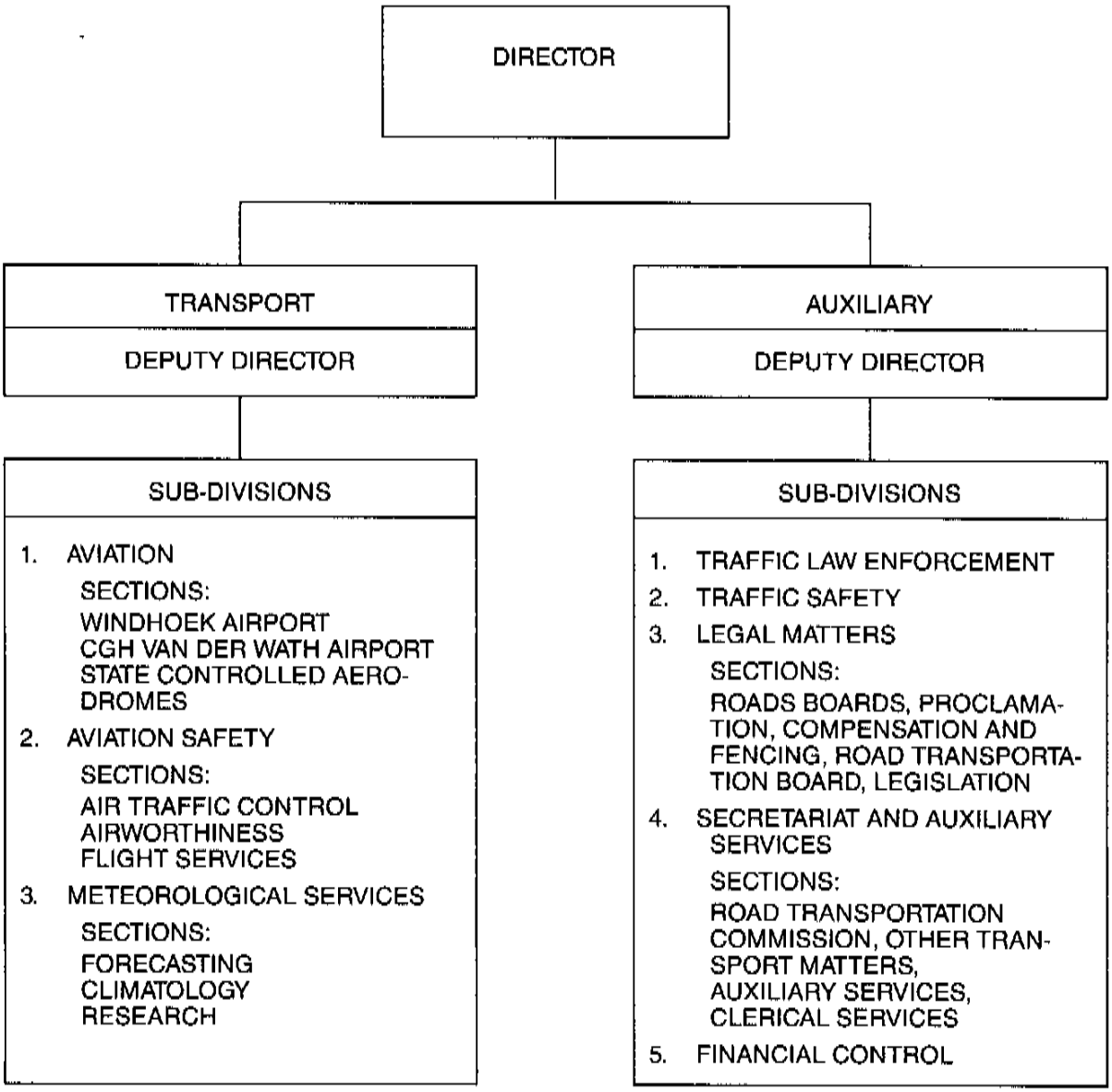


Figure 6.3 Organization Structure of DOT Directorate Transport Regulation and Auxiliary Services

head of the division can be considered as the main aviation person in DOT. The Aviation Sub-division is responsible for the operation of the 15 government airports and aerodromes, including the operation of fire and rescue services and day-to-day operations. There is only one person, the chief of the sub-division, in the DOT headquarters; all other personnel are based at airports and aerodromes.

The Aviation Safety Sub-division is responsible for air traffic control and for undertaking inspection of airplanes, maintenance organisations and personnel on behalf of DOT Pretoria. As DOT at present has no personnel at all for airworthiness, inspection and licencing, this work is done by Petroria. The Meteorological Services Sub-division is responsible for all meteorological service in Namibia, not only for aviation. There are three sections: Forecasting, Climatology and Research.

In the Auxiliary Services Division there are five sub-divisions. The Legal Matters Sub-division administers the Road Boards, which have jurisdictions in respect of district and farm roads in their respective districts, including making recommendations to the government for closing, proclaiming, reclassification, etc., and processes all draft legislative works, including changes in licencing fees, etc. The activities of the RTB also fall under the jurisdiction of this division. The Secretariat and Auxiliary Services Sub-division, *inter alia*, administers and prepares the work of the recently established Road Transportation Commission and performs secretarial functions for the Temporary Transport Advisory Council (see further Chapters 3 and 4). The Financial Control Sub-division is responsible for accounting, including creditors, internal auditing and control, procurement and cost accounting. The Traffic Law Enforcement Sub-division is concerned with the control of road traffic. It also undertakes testing for road worthiness, and for issuing drivers' licenses, and is responsible for the licensing of road vehicles. Finally, the Traffic Safety Sub-division was recently established to take over the functions performed by the now defunct local Namibian office of the South African National Road Safety Council (see Chapter 3).

Table 6.1 DOT Personnel Establishment

POST	Department			Roads			Transport regulation and auxiliary services			Mechanical		
	1 July 1980	1988		1 July 1980	1988		1 July 1980	1988		1 July 1980	1988	
	Appr.	Appr.	Filled	Appr.	Appr.	Filled	Appr.	Appr.	Filled	Appr.	Appr.	Filled
Management	7	13	12	1	6	6	4	5	5	2	2	
Supervision	220	237	188	143	116	105	68	97	70	9	24	13
Operational	2 286	3 558	3 310	1 751	2 842	2 701	414	414	374	121	302	235
Total	2 513	3 808	3 510	1 895	2 964	2 812	486	516	449	132	328	249

Source: DOT

6.6 Manpower and Manpower Development

The total establishment of DOT is about 3 800 posts, making it the second largest department of the Windhoek administration; the largest, National Health and Welfare, has slightly more than 4 000 posts. When DOT was established in 1980, it had about 2 500 posts, but it quickly expanded to over 4 100 posts, when it took over functions from other units, as described in Section 6.1. The decrease in posts to the current level took place mainly in FY 1984/85. The number of seconded civil servants from South Africa has always been low as most of DOT's functions were previously handled by the SWAA. There were 21 seconded staff in FY 1983/84, and only one in mid-1989.

The overall number of vacancies was not high in mid-1988, and only amounted to about 8% of the total establishment. This had not changed much by September 1989. However, the overall figures conceal significant shortages in various skills of great importance to the effective performance of the DOT. These gaps are primarily to be found amongst engineers, technicians, artisans, civil aviation experts and officers for traffic control. At the senior managerial level, almost all posts were manned in September 1989, when the previously vacant posts of Director Mechanical and Director Transport Regulation and Auxiliary Services were filled.

In mid-1989, only 4 out of 18 engineering posts and 19 of the 36 technician posts were filled. Of the 106 traffic officers posts, only 60 were filled. In civil aviation, all four positions in the aviation safety sub-division concerned with control and inspection were vacant. On the other hand, all positions as air traffic controllers and communicators were filled on account of a recent significant pay raise, but this function is understaffed as evidenced by the fact that overtime amounts to more than 15 hours per week, on average. More air traffic controllers were hired towards the end of 1989. There is furthermore a shortage of 40% of the firemen, which in particular affects the supervisory level. It should also be mentioned that in mid-1989, the Airports sub-division of the Directorate Mechanical had 11 vacant posts out of a total of 27 for avionicians, electricians and mechanics. On the whole, Directorate Mechanical has a significant shortage of mechanics and technicians.

The current shortages impair the performance of DOT's civil aviation function and have made it more dependent on DOT Pretoria than envisaged. The situation can only be described as clearly unsatisfactory (see further Chapters 12 and 13). The shortage of staff in the Directorate Mechanical should be seen against the background that the real monies allocated to it have been gradually curtailed during the 80s. There has hence been less money available for reconstruction on contract and replacement of equipment, resulting in a rapidly ageing and deterioating road maintenance and construction fleet. As regards the Roads Directorate, the current shortages probably largely mirror the significant curtailment of road construction activities in recent years (see further below). The shortages are therefore probably not fully as critical when seen from the point of view of the actual needs at present.

Manpower development is partially a departmental concern. The Roads Directorate provides regular training for operators, assistants, foremen and roads superintendents. The Mechanical Directorate trains mechanics and other artisans at its main workshop in Windhoek and the Traffic Law Enforcement Sub-division runs a three-month formal training course for the Diploma for Traffic Officers. Technicians are only trained on-the-job and sent to South Africa to attend courses. And all other more specialised formal training, for example in civil aviation, avionicians, surveying, etc., also relies on outside training, which is mostly carried out in South Africa.

6.7 Finances

Expenditure

The money spent by DOT is entirely obtained from the Central Revenue Fund (CRF); there are no funds providing earmarked funds for the construction and maintenance of roads and airports. Past budgeted expeditures by DOT are given in Table 6.2, which also indicates the proportion of total budgeted CRF expenditures allocated to DOT. As can be seen, DOT's share has been falling throughout the 80s.

In fact, the real amount of money allocated to DOT has been falling sharply during the past decade, and this decrease is primarily due to a significant reduction in real investments in roads and to a lesser extent in long-term maintenance activities (Table 6.3). The reason for this development is partly the fiscal situation, and partly the fact that most of the roads perceived as being required are now largely completed. As shown in Chapter 5, the expansion in the road network has been exceptionally fast and Namibia now has more km of paved roads per capita than any other African country.

Charges

The only direct transport-related fees paid into the CRF at present are landing charges at airports, fees for the licencing

Table 6.2 Budgeted DOT Expenditures and Other Transport-related Items of the CRF (R 000)

FINANCIAL YEAR										
ITEM	80/81*	81/82	82/83	83/84	84/85	85/86	86/87	87/88	88/89	89/90
Total expenditure **	104 407	92 070	81 168	91 210	96 716	85 027	82 313	101 069	112 931	121 402
% of total CRF expenditure	17	11	10	9	8	6	5	5	6	5
Renues:										
Vehicles and related fees	—	2 200	2 400	2 600	4 378	4 000	4 000	7 000	9 130	11 000
Airport fee	580	1 000	1 170	1 100	1 000	1 000	1 000	1 000	1 000	1 000
Levy on fuel				2 500	2 500	12 000	15 000	15 000	28 000	100 000

* Includes additional appropriations
** Exclusive of items related to the railway and Namib Air

Source: Estimate of Renevue and Expenditure, Central Revenue Fund.

Table 6.3 Expenditure on Roads (Million Rand)

	FINANCIAL YEAR									
	80/81	81/82	82/83	83/84	84/85	85/86	86/87	87/88	87/88	88/89
NEW PROJECTS										
Contracts	41.4	30.6	12.2	14.9	14.7	6.9	3.4	8.0	4.3	0.3
Departmental	10.9	11.5	13.8	12.7	9.5	9.6	8.7	10.6	14.9	13.5
TOTAL	52.3	42.2	26.0	27.6	24.2	16.5	12.1	18.6	19.2	13.8
LONG TERM MAINTENANCE										
Reseal and rebuild										
Contracts	10.6	0.4	2.4	0	0	0	0	0	8.3	3.5
Departmental	1.1	1.3	2.4	3.5	5.5	3.6	4.2	3.4	3.9	4.8
Regravel-departmental	16.7	15.1	15.7	14.6	17.3	21.5	14.9	23.5	23.2	36.0
TOTAL	28.4	16.8	20.5	18.1	22.8	24.5	19.1	26.9	35.4	43.3
SHORT TERM MAINTENANCE	10.3	12.8	18.6	29.4	30.2	28.6	40.4	39.7	43.6	39.7
Total expenditure on Maintenance	38.7	29.6	39.0	47.5	53.1	53.2	59.5	66.7	79.0	83.0
ADMINISTRATION	4.0	3.0	5.0	5.6	6.8	6.5	5.1	5.9	6.7	9.1
TOTAL EXPENDITURE ON ROADS	94.9	74.7	70.1	80.7	84.1	76.1	76.7	91.1	104.9	105.8
Total Real expenditure on Roads (1989/90 values)	316.1	216.8	175.9	180.9	172.7	130.6	110.2	116.4	118.3	105.8
thereof on maintenance	134.3	89.4	105.5	114.4	118.6	99.7	91.5	91.0	95.2	90.8
on capital works	181.8	127.5	70.4	66.5	54.1	30.9	18.7	25.4	23.2	15.0
Index *	100	114.8	132.6	148.5	162.1	194.2	231.9	260.8	295.0	333.0

* Based on published indices, with the following weights: labour 30%, plant 30%, materials 25%, fuel 15%

Source: DOT

of vehicles, etc. and a levy on diesel and petrol, implemented during FY 1983/84. These fees are set by the Windhoek administration, but the airport charges and the levy on fuel are apparently the same as in South Africa.

There is little information available about the structure of levies, taxes and fees imposed on liquid fuel products. This information is confidential in terms of the Petroleum Products Act (No. 120 of 1977.) The available information is given in Appendix 4, which also includes an example of the price structure for petrol in mid-1989.

The taxes on petrol and diesel comprise five elements, viz. the sales tax (which was increased from 9 to 10% on 1 July, 1989), the levy on petrol and diesel, customs duties, the Equalization Fuel Fund levy and the Central Energy Fund levy. The latter three of these levies are currently set by South Africa and are also paid into South African funds. The customs duties are, however, in principle returned to Namibia, as the country is treated as an implicit member of the Southern African Customs Union (SACU). The Central Energy Fund is, *inter alia*, used to provide monies for the National Road Safety Council (NRSC) of South Africa and the Multilateral Motor Vehicle Accidents Fund (see Chapter 3), while the purpose of the Equilization Fund, *inter alia*, is to compensate the South African government for the

losses incurred by selling oil to oil companies at world market prices, as the actual prices paid are higher.

With independence it will be necessary to review the current road taxes, primarily as the roles of the Central Energy and Equalization Funds can be expected to be phased out. As mentioned, Namibia has already taken over the responsibilities of the NRSC, and is likely to want to establish its own fund for third party insurance (Chapter 3). After independence, Namibia can furthermore be expected to be able to purchase petroleum products directly on the world market, so that there will be no scope for South Africa to impose levies for the Equalization Fund, as is the case for Botswana. Botswana currently imports all its petroleum products from South Africa.

As part of the review of the tax regime on fuel products, their structure and level should also be analysed. The report of the Advisory Committee on Transport Services (ACTS; ref 1) reviewed the structure of road user charges in the mid-1980s, i. e. those taxes which ensure an economical use of the road network. The ACTS concluded that there was a need for substantial increases in the level of charges; the charges considered included annual licence fees and the fuel levy. The ACTS recommended that the former be viewed as supplementary and used to ensure that each type of vehicle is charged approximately in relation to its contribution to road maintenance and construction costs. DOT subsequently commissioned a consultant to review the structure of the annual licence fees in view of this recommendation; the study was completed in November 1989.

Meanwhile, it appears that the fuel levy has been increased substantially, although confirmatory information is not available on account of confidentiality. As seen in Table 6.2 projected revenues due to the fuel levy increased significantly from FY 1984/85 to FY 1988/89 when they stood at R 28 million; in fact R 62 million were collected during that year. For the ongoing FY further increases to R 100 million are projected. It is unclear whether this jump in revenues reflects further expected increases or changes considered in respect of the funds to which the other monies collected are currently paid in. Apparently, some steps have already been taken by Windhoek and Pretoria to review the tax regime in view of the impending independence.

The levy on fuel (which only applies to vehicles on public roads) is imposed on petrol and diesel, and is believed to be about 22 cents/litre at present (mid-1989). Consumption on public roads amounts to about 300 million litres. However, in spite of the recent increases in the fuel levy, indications are that road user charges are still low, at least for heavy vehicles. According to a recent study on the road maintenance and construction costs associated with the operation of heavy goods vehicles (ref. 52), carried out in the member states of the Preferential Trade Area (PTA), the cost for a fully laden vehicle amounted to at least USD 2.5 per 10 km in 1988 prices (R 5.6 at USD 1 = R 2.25). Currently such a vehicle only generates about R 1 per 10 km in Namibia on account of the road levy. If all taxes etc. are considered, the revenue is about R 2.25 per 10 km.

6.8 Operational Performance and Management Information

The Department's annual reports contain no management information data for making judgements about DOT's performance. A visual inspection of the road network confirms that it is built and maintained to very high standards. There are no indications that air safety at present is threatened by the shortage of trained staff in air traffic control and related fields.

There appear to be problems with enforcing traffic and transport regulations in the country. A study in 1988 revealed that about 30% of the roads exceeded maximum permissable axle loads and that 15% of trucks were, *in toto*, overloaded, while about 20% of the vehicles infringed on the requirements laid down by their carrier permits (ref. 10). The purpose of the study was made known to the public well in advance. These revelations, however, do not point to a situation very different from other African countries, or indeed, other countries in the world.

As indicated above, DOT operates a superb maintenance management information system in respect of roads, primarily for paved roads. It should provide a sound basis for (developing tools for) making decisions about the allocation of resources for maintenance and construction. But the data base will have to be expanded in at least two directions.

The first pertains to unit costs for maintenance. Although the construction and maintenance activities seem to be efficiently operated, there is a need for improving the follow-up costing system. At present, the use of plant, materials and labour is recorded on appropriate returns, but the data are not properly processed. For this reason, it is difficult to measure the total costs of maintenance on a specific road or a section of road. DOT is at least partly envisaging a solution, through a proposed Equipment Management System. Based on the data generated by this system, charges to be levied on the user of the plant and equipment can be established.

The other pertains to road traffic accident data. The absence of data in this field is due to the fact that DOT only recently took over the functions related to road safety (see Chapter 3).

6.9 Conclusions and Recommendations

DOT is like all the institutions of the Windhoek administration dominated by white staff and the effective means of communications is Afrikaans. It is essentially an administration concerned with roads and road traffic, and although civil aviation falls under its jurisdiction, it appears to play a secondary role, as, for example, evidenced by the fact that there is no separate directorate for this sub-sector. The dominance of the roads sub-sector is a reflection of the facts that Namibia has been wholly independent in this sphere for a very long time, as well as the prominence of road building in the economic activities of the country. DOT and its predecessor, have in fact been one of the most visible organisations in Namibia. This has also allowed for considerable room for developing engineering talents.

DOT has, however, for some time seen its environment changing, a process of change, which will be accelerated by the independence process. Road construction is not in the forefront of state activities any longer and these priorities are not likely to change after independence. Independence will also imply new demands on DOT, in which it has limited experience. Because, pending a possible thorough review of the government structure of independent Namibia, there is no other alternative but to use the present DOT for establishing an administration with a comprehensive responsibility for the normal government functions in the transport sector.

These trends, i.e. the need for accomodating other sub-sectors and a lower profile for roads and road traffic, coupled with a new language policy and a greater emphasis on the advancement of black Namibians, will make DOT vulnerable after independence. At the same time, DOT currently has dedicated and competent staff, which will be badly needed by independent Namibia.

For these reasons caution must be exercised as concerns the future development of DOT. Three actions will be of primary importance to ensure a smooth evolution of DOT. Firstly, it will be imperative to maintain the current level of expenditure on roads, not only to ensure the proper maintenance of the road network in a long run perspective, but also to maintain staff morale. Secondly, the current staff must be fully involved in any process to restructure and develop DOT. And thirdy, although there may be a need for reviewing some of the standards and targets set by DOT, for example in respect of road building, the review process should be done with the full involvement of DOT's staff.

As concerns the restructioning of DOT, the following actions will have to be taken soon after independence: New directorates or units should be established for:

- civil aviation;
- maritime affairs, and
- planning and policy analysis

In a somewhat longer perspective there will be a need for reviewing the structure of DOT further, and in particular the role and position of the Mechanical Directorate, in view of the fact that it primarily provides service functions for the other directorates.

A final recommendation is that a study on road taxation and user charges be initiated soon after independence. Its background has been indicated above, but the scope of the study should be widened to consider the possibility of earmarking (some of) the monies obtained through road user charges to the roads sub-sector or to road maintenance. All the above recommendations will be developed further in Chapters 12 and 13.

7. DEPARTMENT OF POSTS AND TELECOMMUNICATIONS

7.1 Functions

The Directorate of Posts and Telecommunications functioned as a branch of the South African Department of Posts and Telecommunications (SAPT) until 30 November 1979, when it became part of the Namibian government structure. It was elevated into a department through the promulgation of the Government Service Act of 1980. With the taking over of the Post Office Savings Bank in South West Africa on 1 October 1983, which until then had been administered by the SAPT on an agency basis, and the transfer of the Namibian telephone accounts from the SAPT computer on 1 April 1983, DOPAT became a fully fledged and autonomous institution not only in theory, but also in practice. Being a government department, however, DOPAT still falls under the overall control of the AG.

DOPAT today performs all normal functions associated with a post and telecommunications administration - for a list of such functions, see Appendix 3. In addition to these functions, DOPAT is responsible for the management of radio frequencies and the licencing of high frequency radios used by municipalities, government departments, private individuals and companies, and ships. It should also be mentioned that DOPAT, in addition to conventional post office savings accounts, offers two other savings instruments, referred to as Savings Bank Certificates and Development Bond Certificates. The latter are sold on behalf of the Department of Finance.

Areas outside the direct control of DOPAT primarily include matters of an international nature, e.g. dealings with multilateral bodies, such as the African Postal Union, the African Telecommunications Union, the Universal Postal Union (UPU) and the International Telecommunications Union (ITU). For international contacts, DOPAT works through its South African counterpart. The SAPT furthermore provides administrative and technical support when necessary, and its long-term agreements with South African manufacturers and suppliers normally also cover DOPAT.

The public radio and television infrastructure is operated separately, although SWABC leases circuits of the microwave backbone from DOPAT. Buildings used by DOPAT are formally the responsiblity of the Department of Civic Affairs and Manpower, and DOPAT is only concerned with their day-to-day maintenance.

7.2 Organisational Structure

DOPAT is headed by a Postmaster General and consists of two directorates for (i) Engineering and Technical Services and (ii) Commercial and Support Services. The top echelons of the organisational structure are shown in Figure 7.1.

The Directorate for Commercial and Support Services is responsible for (i) policy formulation, (ii) recruitment and manpower development, (iii) operations of post offices, including associated administrative functions, (iv) procurement, (v) internal auditing, (vi) budgeting, (vii) financial transactions, (viii) inspections, and (ix) security and safety.

The regional structure of the post office operations is shown in Figure 7.2. Subordinate post offices report to the independent post offices, which in turn report to the Director for Commercial and Support Services. There is a postmaster in charge of each independent and each subordinate post office.

The Directorate for Engineering and Technical Services handles planning, construction and operations of all the telecoms equipment and facilities. The regional organisation of the Directorate is not fixed. There is a varying number of engineering stations in the country, which are administered by senior, chief or control technicians, depending on the size and importance of the station. They report directly to Windhoek, where the responsibility for operations and monitoring rests. At present many of the senior officers at the DOPAT head office have an operational responsibility for a given region of the country.

There is no separate function within DOPAT concerned with strategic planning, projects and project implementation. The present organisational structure of DOPAT therefore means that the headquarters staff are normally involved in both operations, and planning and development. In effect, this seems to mean that day-to-day problems are attended to first while longer term problems receive less priority, a bias which could have a negative impact on the long-term development of, in particular, the telecoms network.

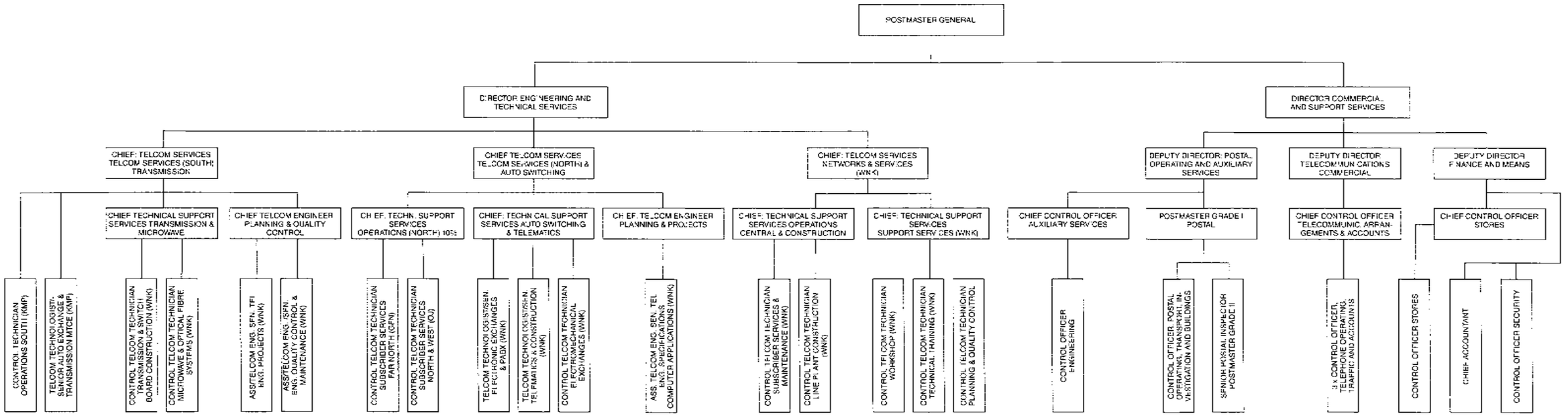
7.3 Manpower and Manpower Development

Some data on the manpower of DOPAT are presented in Table 7.1 and additional information is provided by Figure 7.1. DOPAT also employs about 500 casual labourers, not part of the establishment, for implementing projects.

Seconded staff refer to employees of SAPT working in DOPAT. As can be seen, there has been a downward trend in this number, reflecting that people have both returned to South Africa and joined DOPAT. At present there are about 20 seconded South Africans, most of them working in the Directorate for Engineering and Technical Services. Seconded South African staff can join the Namibian civil service under a special amnesty rule, without loss of accumulated pension benefits.

The seconded staff in Engineering and Technical Services are all technicians and electricans at senior level. According to DOPAT most of them have already applied for permanent employment but could earlier not be accommodated due to a shortage of suitable posts and lower salaries. A new postal structure introduced on 1 April 1989 can, however, accommodate these seconded officers, and DOPAT now expects several of them to join.

Otherwise, Table 7.1 gives no specific trends in respect of establishment and vacancies, although it seems that the vacancy situation may have worsened recently. Many of the vacancies refer to lower ranks, but it is also clear that DOPAT has important gaps in key engineering and management positions, and many vacant positions for telecoms technicians and electricians (about 20 to 30% of the established posts).



Total approved posts: 2516

Figure 7.1 DOPAT Organisation Structure and Establishment as from 1 April 1989

DOPAT runs its own Functional Training Centre for the training of technicians, electricians and post office clerks. The only use made of South African facilities is for a few specialised courses, not offered locally. The course for both technicians and electricians runs for 3 years. Part of it has been developed and is taught by the Technikon, which is part of The Academy (the University of Namibia). The Centre may accept 60 technician students every year. Training is also being offered for career advancement, but DOPAT only pays for half the required time, according to rules laid down by the Government Service Commission.

Many of the technicians and electricians trained by DOPAT are lost soon after graduation. The reason for this is a shortage of expertise in the country and inadequate salaries. A review of the salaries is underway.

The official languages of the Government Service are Afrikaans and English, and it is a formal requirement that all employees should have a command of at least one of the two languages. All training courses given by the Training Centre are in Afrikaans, but all study material is available in both langugages and exams can be written in either language.

Independent offices	Subordinate offices	Independent offices	Subordinate offices
Aranos		Otavi	
Bethanie	Helmeringhausen		
Gobabis	Leonardville	Otjiwarongo	Kalkfeld
	Otjiwa POA		Okakarara
	Witvlei	Outjo	Opuwo
Gochas			Kamanjab
Grootfontein			Okaukuejo
Karasburg	Ai-Ais POTtA		Khorixas
	Ariamsvlei		
	Grünau	Rehoboth	Rehobothstasie
	Noordoewer	Rundu	Mobile Post Office
	Warmbad		
Kalkrand	Schlip PA	Swakopmund	Arandis
Karibib			Hentiesbaai
Keetmanshoop	Aroab		Vineta
	Koes	Tsumeb	Namutoni
	Tses POTtA		
Kombat		Usakos	
Lüderitz	Aus	Windhoek	Ausspannplatz
	Rosh Pinah		Bachbrecht
Maltahöhe			Dordabis
Mariental	Gibeon		Eros
	Stampriet		Windhoek Airport
Ngweze	Bukalo POA		Katutura
	Cincimani POA		Khomasdal
	Coi POA		Klein-Aub
	Impalila POA		Klein Windhoek
	Ngoma POA		Pionierspark
	Sibbinda POA		
	Sangwali POA		
	Katima Mulilo		
Okahandja			
Omaruru	Uis		
Omitara	Otjinene POTtA		
Ondangwa			
Oranjemund			
Oshakati	Eenhana PA		
	Ekwafo PA		
	Mobile Post Office		
	Ombalantu		
	Omungwelume PA		
	Onandjaba PA		
	Ongandjera		
	Oshikango		
	Ruacana		
	Uukwambi PA		
	Uukwaluudhi		

Legend:

PA: Postal Agency
POA: Postal and Postal Order Agency
PTA: Postal Telegraph Agency
PTtA: Postal Telegraph and Telephone Agency
POTtA: Postal and Postal Order Telegraph and Telephone Agency

Figure 7.2: Post Offices in Namibia

Table 7.1 Dopat Manpower

	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
Total Establishment*	2 199	2 126	2 317	2 410	2 349	2 364	2 388	2 433	2 486
Seconded staff from Sout Africa	550	411	306	250	185	137	57	N.A.	≧17
Vacancies	216	194	128	370	240	90	278	165	387

* Including for capital works

Source: Annual Reports for DOPAT for 88/89

7.4 Financial Position

Operating and capital works funds are allocated from the Treasury in accordance with the annual budget of the Central Revenue Fund (CRF) and all revenues are paid over to the Treasury. Consequently, DOPAT does not retain any funds of its own, and does not produce financial statements in the format of profit and loss accounts and balance sheets. The accounts are audited by the Namibian Auditor-General as part of his audit of the CRF.

The financial performance of DOPAT is hence difficult to determine. The data in Table 7.2 seem to indicate that DOPAT's financial position has gradually improved since its establishment. It is also a significant fact that DOPAT has adhered reasonably well to the constraints laid down by the budget. There has generally been underexpenditure on the capital account, while several years show that actual operating expenditures exceeded the budget somewhat, which were covered through additional appropriations.

The surpluses of recent years do not necessarily signal that DOPAT is operating as a financially self-sustained corporation. There are two reasons for caution in this regard.

One is that not all the costs incurred by the posts and telecoms operations are reflected in the accounts, i.e. the costs of buildings and utilities. The other is that the real value of investments has actually fallen over the period 1980 to 1989, so that in fact the total value of DOPAT's assets may also be decreasing, at least on a per subscriber basis. In approximate terms, DOPAT invested about R 7 million annually at the beginning of the eighties. In recent years, investments have fallen to R 4-5 million (1980 prices). The presence of obsolete exchange equipment seems to vindicate this, as well as the waiting list of applicants (see below).

No data are available on the separate financial performances of telecoms and postal services. The latter are said to run at a "loss" and are "subsidised" by the telecoms revenues. For this reason DOPAT is of the opinion that any future incoporation of DOPAT should embody both branches.

It is unlikely that tariffs today are cost-based or cost-related. Pricing policies, as in many other countries including South Africa, have primarily been guided by a public service requirement and the need to have an overall balance between revenues and expenditures.

7.5 Operational Performance

There are very little data available to evaluate DOPAT's operational performance. The reason for this is that DOPAT has no proper management information systems. Most of the data on subscribers, faults, network capacity and cable records are handled manually or in single stand alone personal computers. Some basic data regarding faults and costs of operations are sent to South Africa for data processing. However, no systematic reports are generated, as also

Table 7.2 DOPAT; Revenues and Expenditures (R 000)

Financial Year	Budget				Actual				
		Expenditure				Expenditure			
	Revenue	Capital	Running	Total	Revenue	Capital	Running	Total	Net
1979/80	21 177	7 017	22 587	29 604	18 123	5 495	22 111	27 606	(9 483)
1980/81	27 261	10 009	24 024	34 033	28 018	7 768	26 131	33 899	(5 881)
1981/82	30 870	7 246	24 944	32 190	31 631	6 892	27 183	34 075	(2 444)
1982/83	37 472	7 692	30 959	38 651	37 480	6 386	35 481	41 867	(4 387)
1983/84	47 355	11 989	39 630	51 619	46 652	8 667	39 964	48 631	(1 979)
1984/85	52 070	15 205	44 137	59 342	52 438	13 533	44 241	57 774	(5 336)
1985/86	59 660	19 370	47 425	66 795	60 331	18 925	47 617	66 542	(6 211)
1986/87	68 465	14 397	54 546	68 943	74 230	11 089	55 243	66 332	7 898
1987/88	82 625	14 054	60 700	74 754	89 392	14 136	63 230	77 366	12 026
1988/89	88 500	12 604	66 386	78 990	109 939	11 051	66 670	77 721	32 218
1989/90	113 415	15 682	86 926	102 608	—	—	—	—	—
1989/90*	124 715	14 567	91 238	105 805					

* Including additional appropriations

Sources: Central Revenue Fund: Estimates of Revenue and Expenditure.
Auditor-General Reports on the Accounts of the Central Revenue Fund, and DOPAT.

evidenced by the lack of statistics on operational performance in the annual reports of DOPAT. It should also be mentioned that salaries are not performance related and there is thus no need for operational data for this purpose.

The data available concerning, for example, the waiting list for telephone services and the quality of service suggest that DOPAT is reasonably efficient. In mid-1989, there were a total of 1 800 applicants, including almost 700 applications for farm lines. The waiting lists are long by European standards, but shorter than in most other African countries. However, it should be noted that the length of a waiting list is a poor measure of performance, as it may well only reflect inadequate investment funds.

The number of registered faults per subscriber and month ranges between 20-50/1000. These figures are rather high and seem to indicate that parts of the network are becoming old. Faults are cleared the same day or within 24 hours, subject to the availability of spare parts. DOPAT is unable to measure congestion and loss of traffic, but states that it has received no severe public complaints so far.

7.6 Conclusions and Recommendations

DOPAT appears to be well poised for effectively carrying out the functions of the posts and telecommunications operator of independent Namibia. As a whole, it possesses know-how, has established organisational procedures, controls manpower and manpower development, and appears to be basically financially sound. Also, DOPAT essentially operates independently of its South African counterpart. The remaining linkages will either vanish automatically once Namibia becomes independent or are determined by the current structures of the international telecoms and postal networks (Chapter 5).

Some of the issues which now confront DOPAT are common to all public organisations in the transport and communications sectors. These are:

(i) Serious manpower shortages in the technical and managerial fields.

(ii) The fact that all senior staff are white and the lingua franca of DOPAT is Afrikaans.

(iii) The vulnerability of the financial position on account of the fact that DOPAT operates as an integral part of the CRF and the current and prospective imbalances in the CRF (see further Appendix 2).

In addition, the following three characteristics of DOPAT should be identified:

(iv) DOPAT's medium to long-term planning function is weak, as evidenced by an absence of long-term objectives and plans.

(v) The current organisational structure mixes planning and operational functions, with the latter receiving priority.

(vi) On account of the gradually weakening position of the CRF, investments appear to have been low in recent years, with negative effects for primarily the development of the telecoms service in underserved parts of the country and the replacement of obsolete equipment.

Many of these problems are believed to have been caused by or at least magnified by an inappropriate current operational framework for DOPAT. DOPAT is primarily a large-scale producer of services, but is also characterised by its need for heavy, rather long-term capital investments and for a decentralised organisational structure in view of its size and the vastness of the country. For these requirements, the present framework, viz. that of a government department, is wholly inappropriate.

Hence, the single most important change and recommendation, would be to convert DOPAT into a government-owned corporation. It would mitigate against the negative effects of five of the issues raised above. It will also make it easier to increase DOPAT's efficiency and make better use of the impressive human resources already at its disposal.

The forthcoming independence appears to be an opportune moment to set an incorporation in motion. As a whole, such a reform could be expected to be well-received by most DOPAT staff, and in particular by the key staff members whom it will be crucial to retain after independence. On the other hand, given the uncertainties arising out of the independence process, it is necerssary to prepare the ground well. In addition, the process of incorporation should be viewed against the background of the long-term development requirements, of first and foremost, the telecoms network, and its implications for investments, manpower development and organisational change. For this reason a technical assistance project will be required, to simultaneously pave the way for the incorporation of DOPAT and to prepare a master plan for the telecoms network (see further Chapter 12).

8. TRANSNAMIB LIMITED

8.1 Background

Responsibility for the management of the Namibian railway system and the port of Lüderitz was assumed by South African Railways and Harbours (SAR&H) in 1916, who subsequently took over full responsibility in 1922. The port of Walvis Bay was administered by the magistrate, until SAR&H assumed full control on 1 August, 1915. SAR&H, which was reconstituted as South African Transport Services (SATS) in 1981, operated the Namibian ports and railways as an integral part of the South African system until April 1985. There were, however, some exceptions.

Railway tariffs were for a long period not fully brought into line with the South African system, which differentiates between commodities and distances, but not between the transports. In order to make the Namibian railways more self-supporting, surcharges were imposed on certain goods and on passengers, and tariffs for through traffic between South Africa and Namibia were normally calculated separately to and from the border. The Odendaal Commission recommended in 1964 that a uniform rating structure should be used, and that it should also be applied in respect of cross-border traffic. It was proposed that the loss of revenue would be absorbed by SAR&H and the losses ultimately guaranteed by the South African government. This recommendation was apparently implemented.

There were also exceptions in terms of responsibilities for the operating losses of some of the branch lines. In 1957 an agreement was reached between SAR&H and the SWAA on the widening of the narrow gauge branch lines Kranzberg-Tsumeb, Otavi-Grootfontein and Otjiwarongo-Outjo to the standard Cape gauge (1 067 mm) of the railways in southern Africa. The agreement stipulated that the SWAA would cover the losses of these lines in excess of the losses of the narrow gauge lines during their last year of use (FY 1959/60). A similar agreement had previously been reached concerning the Gamams to Gobabis branch line, which was built during 1924 to 1930; the agreement came into effect in December 1929.

The Odendaal Commission recommended that the Government of South Africa should assume full responsibility for these so-called guaranteed lines. Apparently this recommendation was also implemented, although the reform was notional. From FY 1968/69 the compensatory payments in respect of the guaranteed lines were made from the South West Africa Account which formed part of the State Revenue Fund of the Republic of South Africa, and not any longer from the Accounts of the South West Africa Administration. Most of the revenues of both of these accounts derived from Namibia.

In FY 1979/80 the payments in respect of the guarantee were again made from the Accounts of the SWAA and in the subsequent year from the Central Revenue Fund (CRF). At about the same time, changes were also made in the structure of the contributions from Namibia. From FY 1978/79 the formula for determining Namibia's share of the losses in the operation of the Gamams to Gobabis branch line was modified. Furthermore from FY 1979/80, the Windhoek administration defrayed the maintenance costs of operating a training centre and the cost of maintaining "parity of salaries". This refers to the condition that discriminatory salary policies were removed in Namibia at this time.

Memorandum of Agreement

On 10 May, 1985 the AG and SATS signed a "Memorandum of Agreement", which transferred to the Windhoek administration, the authority and control over the railways, the port of Lüderitz, SATS road transport services in Namibia and the lighthouses along the coast (except in Walvis Bay). SATS did not relinquish ownership of their Publicity and Travel Department (operating under the trade name SAR-TRAVEL) and assets used by SAA.

The background to this transfer is not known, but it is possible that it had been recommended by the Welgemoed Commission (Chapter 4) as part of the South African policy of Namibianising the government and parastatal companies. In any case, it is unlikely that the transfer was opposed by SATS, as it had incurred heavy losses on the Namibian system (Section 8.4) and unsuccessfully had tried to reduce the scale of the railway operations by closing the branch lines from Aus to Lüderitz, Gamams to Gobabis and Otjiwarongo to Outjo.

The Memorandum of Agreement became effective through a Proclamation by the South African State President (No R.52, 1986; see Appendix 1). The information available about the Agreement is:

(i) SATS was appointed to manage and operate the railway, etc. for the Windhoek administration until requested to also transfer these functions.

(ii) The Windhoek administration assumed financial responsibility. However, in order to reduce the financial burden, SATS would absorb 30 %, 20 % and 10%, respectively of the operating losses during the first three financial years (commencing FY 1985/86), after having deducted the items to be paid by Namibia according to previous agreements (see above).

(iii) The Windhoek administration would determine fare and service levels, but until otherwise agreed, existing SATS accounting procedures, fare and service levels would be maintained.

(iv) Revenue from cross-border traffic would be divided between SATS and Namibia on a *pro rata* basis according to the distance covered in each country.

(v) Full income from, and costs of road and rail services to and from Walvis Bay would be allocated to Namibia for the first three years. Renegotiations would then take place.

(vi) The existing 5 200 SATS personnel in Namibia would remain SATS employees, but staff entering service after 1 April, 1985 would not have the right to be relocated to South Africa. New conditions of service for employees would have to be determined once a new rail management organisation had been established.

Namib Air

Namib Air was formed in 1946 as South West Air Transport and began scheduled operations in 1948. In March 1959, the company merged with Oryx Aviation and became South West Airways (Pty) Ltd. The airline became a wholly owned

subsidiary of South African Marine Corporation Ltd. (SAFMARINE) in November 1974. The present name, Namib Air, was adopted in 1978.

On 1 July 1981, the Windhoek administration bought 51 % of the equity in Namib Air's holding company, Namibia Airlines (Pty) Ltd., from SAFMARINE, on the recommendation of the Welgemoed Commission (Chapter 4). The shares were vested in the First National Development Corporation (ENOK), a parastatal body with a mandate to promote the "business sector's growth" and "socio-economic deve-lopment", and to operate "economically strategic concerns". SAFMARINE continued for some time after 1981 to provide management and operational support.

On 17 March 1987, the TGNU bought the remaining 49 % of the equity in Namibia Airlines. These shares were also held by ENOK.

The National Transport Corporation (NTC)

The Advisory Committee on Transport Services (ACTS; ref. 1), in 1986 recommended that the operations of the railway, the port of Lüderitz, SATS former road transport services and Namib Air be entrusted to a multimodal government corporation. In 1987 the Assembly subsequently passed the National Transport Corporation Act (No. 21 of 1987), in accordance with this recommendation.

The NTC came into operation on 1 July 1988, which also marked the end of SATS involvement in the Namibian transport sector. On the same day, the shares of Namib Air were transferred from ENOK. NTC used TransNamib as the trade name for its overland operations and Namib Air for its aviation activities. The name of the corporation was changed to TransNamib Ltd (TNL), with effect from 1 July, 1989.

8.2 Functions and Regulatory Provisions

The NTC Act provides for the establishment of a limited liability corporation with the objective:

"(a) to manage, control, maintain, exploit and promote in the national interest transport services in the territory, and

(b) to manage the said transport services according to general business principles".

TNL is entrusted with all former SATS assets transferred to the Namibian administration in 1985 and all the shares in Namibia Airlines. The authorised share capital is fixed at R 1 billion. The initial share capital was in the amount of R 150 million, which closely corresponded to the value of the assets transferred from SATS and the cost of the shares bought from SAFMARINE. The issued share capital had increased to R 252.8 million by 1 April, 1989. All the shares are owned by the Windhoek administration (the Cabinet).

The Act provides for a board of directors, with 7 to 9 members, to be appointed by the Cabinet for a period not exceeding 3 years. A managing director, to be the chief executive officer and member of the board, is to be appointed by the board of directors. Members of the Assembly, Cabinet or other executive and legislative authorities and full-time civil servants are not eligible for appointment to the board of directors. A director may at any time be removed by the Cabinet.

The corporation can on its own:

- introduce new and terminate existing services in all branches of transport;
- formulate policies;
- borrow and lend money;
- employ employees on conditions determined by the board;
- determine tariffs;
- exercise its powers in any foreign country; and
- "expropriate movable and immovable property in the public interest".

TNL needs the consent of the Cabinet to:

- amalgamate with companies having a similar objective;
- enter into agreements with other countries to undertake air transport; and
- construct railways and harbours or similar work, with the exception of minor extensions to the railway network.

The Cabinet can request TNL to provide services it does not want to supply. But if the Cabinet and TNL cannot agree on the conditions, it is in effect TNL who decides the level of compensation. The formulation of the Act is such that the compensation should be determined by "the costs and tariff which the corporation would have imposed if the said services or facilities had been provided on the basis of business principles". No arbitration procedures are provided for.

The board of TNL decides on share issues (within the authorised capital). The first offer has to be made to the Cabinet, but if it declines, shares can be sold to anyone.

TNL is not subject to the Companies Act (RSA Act No. 61 of 1973). It does not pay profit tax at present, but this is being reviewed. It has also been relieved of some of the duties on diesel fuel since FY 1989/90 (part of the fuel levy; see Section 6.7 and Appendix 4). The NTC Act thus provides for the Cabinet to "render to the Corporation such financial assistance as it may deem necessary".

In summary, although the Act does not give a *de jure* monopoly in the supply of any transport services, TNL is given vast powers in view of the fact that it has a *de facto* monopoly position in the provision of rail and scheduled air transport. (However, see also Section 9.3). There is currently no other institution in Windhoek with the power to ensure that TNL cannot exploit this position to the detriment of the public interest. Apparently, however, it has been envisaged that the proposed Transport Tribunal (cf. Chapter 3) should play such a role.

8.3 Organisational Structure and Manpower

Structure

Already during its short history, the organisational structure has undergone significant changes. During its first year of operation, TNL essentially retained the structure it inherited from SATS, as modified in order to handle new functions, including the operations of Namib Air. There were five departments, viz. Technical, Commercial, Finance, Administration and Aviation, each headed by an Assistant General

Manager. They reported to the General Manager, who in turn was responsible to the Managing Director.

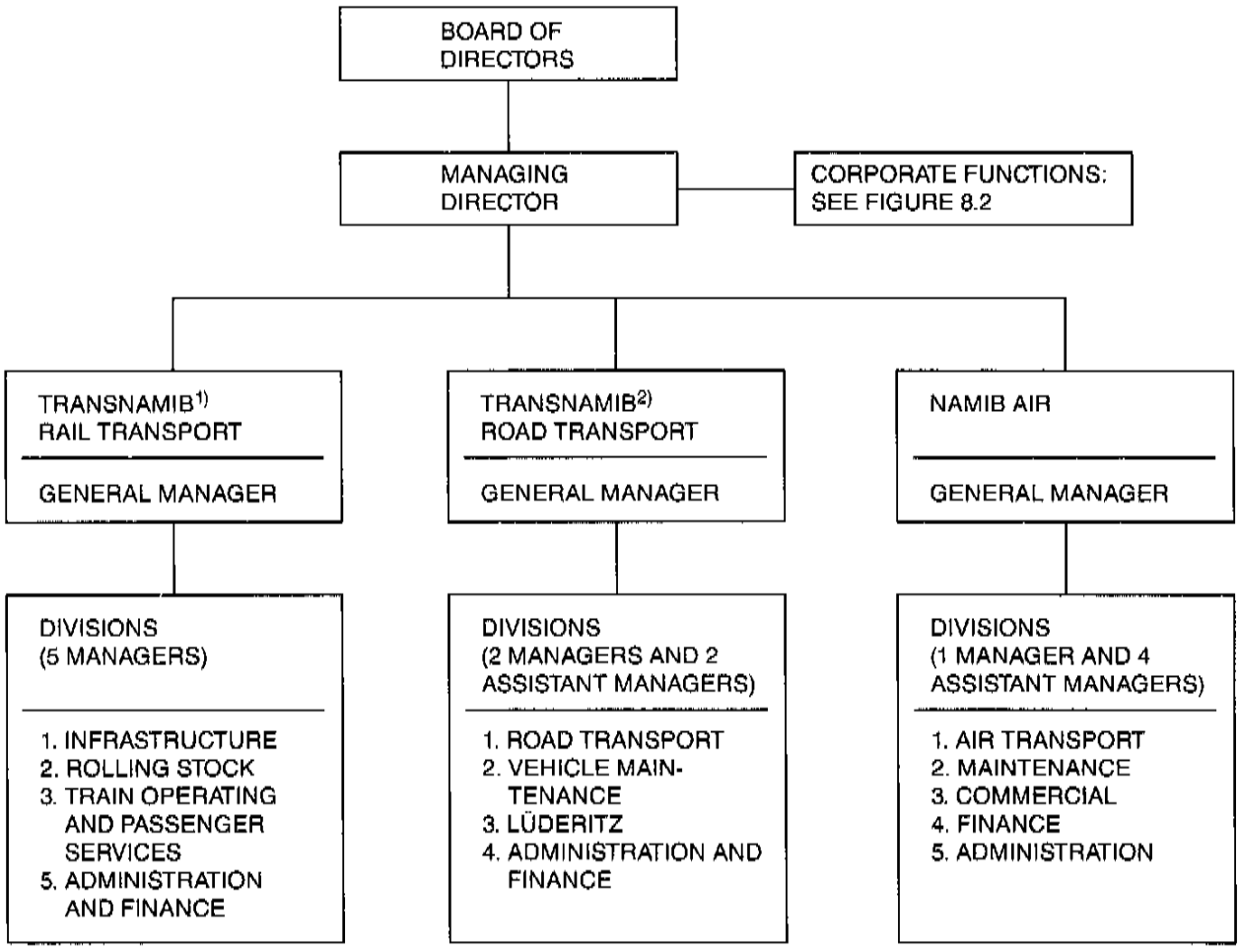
In October 1989, a new structure was introduced, which is summarised in Figures 8.1 and 8.2. It makes a distinction between head office — or corporate — functions and so-called business units. The intention is that the new organisational structure shall be more commercially oriented, by allowing for a greater degree of decentralisation in decision making as well as in performance measurement. Each business unit is expected to be self-supporting in respect of all day-to-day activities. The Fixed Assets unit will be responsible for the acquisition, sale, and leasing of surplus fixed assets. It also administers a staff housing scheme involving about 870 houses. Namib Air is functionally a business unit, but still in effect a subsidiary company.

Manpower

TNL employed 3 575 persons on 31 March 1989, compared with 4 935 employees one year earlier. There have therefore been substantial reductions since the SATS era. The real decrease is even larger, about 1 500 persons, in view of the fact that SATS did not operate Namib Air and hardly performed any head office functions in Windhoek. TNL has, in other words, had to establish all the management and control functions from scratch, including recruitment of the required staff. The senior management of TNL comprises people recruited from Namibian born personnel working in South Africa and from the private sector in Namibia, but is still entirely white.

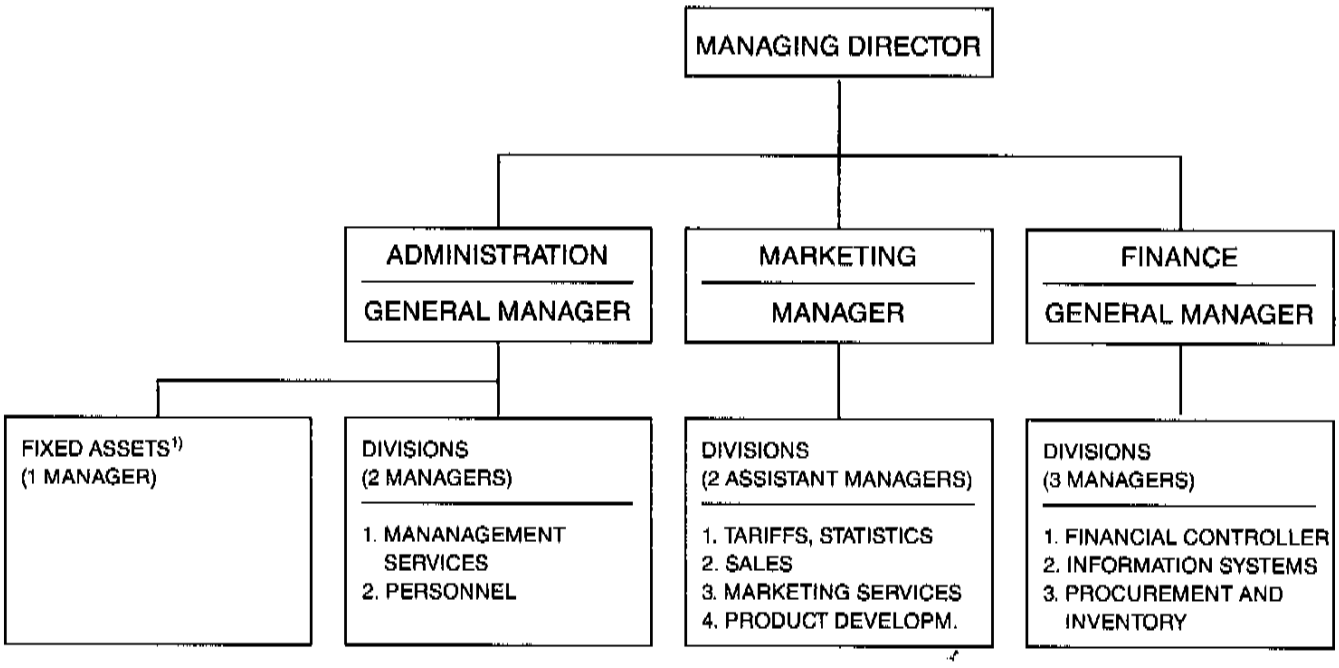
There are three explanations for the reduction in staff. On 1 June 1988, SATS employees were given two months' notice either to join TNL or to return to South Africa. A total of 461 SATS employees decided to return to South Africa. SATS employees were at the same time offered early retirement and about 600 workers accepted these terms. Finally, 433 general workers were laid off on account of completion of rehabilitation works of the main line, which have been ongoing during much of the 80s.

The previous organisation was, according to TNL, overstaffed on account of labour practices. SATS operated a dual system of service conditions, while TNL has introduced uniform conditions, irrespective of race. TNL also claims that it has the staff required for the efficient operation of the system, but concedes that there are some gaps to be filled. These are primarily to be found at the engineering, technician and mechanic levels. On 31 March 1989, 30 key positions were said to be vacant. The total vacancy level cannot be determined according to TNL as the establishment is continuously being reviewed. There is no evidence of the reduction in staff leading to operational problems.



1) Tradename TransNamib Rail
2) Tradename TransNamib Carriers

Figure 8.1 Organization Structure of TNL, Including Base Structure of Business Units (as from October 1989).



1) Tradename TransNamib Estates

Figure 8.2 Organization Structure of TNL Corporate Functions (as from October 1989).

At the end of 1989, TNL employed about 3 700 persons, of whom 2 950 were in railway operations, 650 in road transport, including Lüderitz, and 120 were employed by Namib Air. TNL has established a contributory pension scheme for its employees, which is administered by Sanlam, as well as a free medical scheme, administered by Old Mutual.

Training College

A training college was opened in 1983 at Gamams on the outskirts of Windhoek. It consists of a modern one-storey building which includes 13 classrooms and accommodation for 160 students in single rooms, mess hall and other normal facilities. The maximum number of trainees in the school at any one time is 230, and the minimum age accepted is 18 years.

Courses are provided for:

- Platelayers
- Train drivers
- Shunters
- Traffic controllers
- Road truck drivers
- Commercial officers
- Wagon repairers

In addition, the college offers a variety of management and advisory training courses where the basic pinciples of administration procedures, inter-personal relationships, motivation and productivity are taught.

The college is multiracial and courses vary with the requirements of TNL. The number and disciplines of the instructors also vary with the demand for courses. The training is generally conducted in Afrikaans, but in English where necessary to interpret manuals.

The college does not have its own workshops although there is a large compound adjacent to the main building where permanent way training is carried out. Apprentice training schools exist at the workshops and in the central area for the training of diesel electric-fitters, motor mechanics and signal and telecommunications technicians. This training is supplemented by formal training at other education centres as directed by the Department of Civic Affairs and Manpower.

TNL has introduced several training schemes for speeding up the advancement of primarily its black workers. This entails training to a relatively high degree of competence in narrowly defined areas, whereever mechanical tasks can be segmented.

8.4 Operations, Systems and Performance

Management Information Systems

TNL has taken over some of the management systems used by SATS. As these were designed to meet SATS overall requirements, they are not ideally suited to the needs of TNL. They also make TNL dependent on SATS as the systems are computer-based and rely on SATS facilities in South Africa. For example, revenue accounting is based on SATS INTAC-system, which cannot generate a separate debtors' account for TNL's clients. Major adjustments would also be required to the SATS systems to determine proper costs of operations in Namibia.

TNL has, however, implemented its own accounting system and is now also in the process of establishing its own systems for debtors accounting, cost accounting, train information and wagon information, etc. They will become independent

of SATS' and are planned to come into operation in April 1990.

Operational Performance

TNL has recently introduced a new management information system for operational performance. Available data indicate that locomotive availability is 85%. In view of the high age of the locomotives, this appears to be very satisfactory. Turnaround for wagons used in domestic traffic was on average 9.6 days during the first 9 months of operation, an improvement in comparison with the last 11 months of SATS operation, when it stood at 14.2 days.

Working Agreement with SATS

TNL uses SATS wagons for most of the international traffic as most of this traffic originates in South Africa. During the first nine months of operation, there were on average 1 400 SATS wagons per day in Namibia and 111 TNL wagons in South Africa. To regulate the cross-border traffic an agreement was signed with SATS on 1 July 1988.

This agreement also covers the operations of TNL in Walvis Bay, mutual travelling benefits of TNL and SATS employees and secondment of staff. In mid-1989, there were only 3 persons seconded from SATS, none of them in a senior management position.

Tariffs

As mentioned, TNL can set its own tariffs, without any public interference, and has also started to do so by negotiating contract rates with its large customers. Otherwise, TNL still makes use of SATS tariffs, in particular for cross-border traffic. TNL claims that use of SATS tariffs for international traffic is preferable as a split tariff would yield excessively high rates, but presumably the use of the INTAC-system has also restricted the choice. Revenues are divided on a *pro rata* basis in terms of the working agreement.

The current tariff structure is shown in Figure 8.3. It differentiates between 14 classes, as well as some other categories of goods. SATS mainly relies on this structure today, which also pertains to cross-border traffic in general. With the forthcoming incorporation of SATS in April 1990 (see Chapter 4), it is expected that SATS tariff setting will become much more flexible.

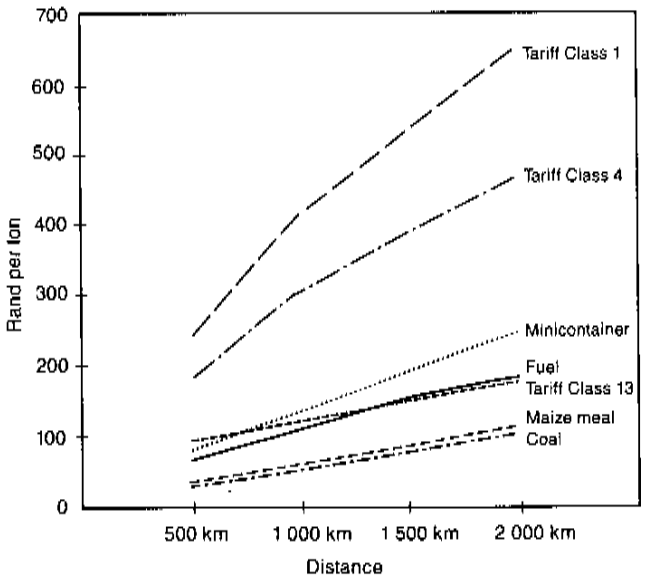


Figure 8:3 NTC and SATS Railway Tariff (1989)

Financial Performance during the SATS Era

Until recently, there has been a dearth of published data on the financial performance of the systems now being operated by TNL although SATS apparently had a well developed accounting system, which could be used to separately establish financial statements for the Namibian components. However, according to TNL, SATS accounting system tended to overstate the costs of the Namibian operations as a result of the use of average costs for the overall network of questionable validity to Namibia.

For this reason, not too much attention should be paid to the actual level of expenditures to be presented here. Notwithstanding this, it appears certain that the financial performance during the SATS era was poor.

The Railway operations have thus consistently been making losses since they were taken over by SAR&H. The Odendaal Commission reported that losses between 1933 and 1963 were in excess of 40% of revenues, although higher tariffs than in South Africa were imposed during that period. These losses relate to the railway and the port of Lüderitz, and were apparently at least of the same order of magnitude during the period 1922 to 1933.

Table 8.1 Operating Results of Namibian Railways (R million)

Financial Year	Revenue	Expenditure*	Loss	Cost recovery (%)
1980/81	58.6	104.0	45.4	56
1981/82	68.9	139.2	70.3	50
1982/83	71.6	144.7	73.1	50
1983/84	78.2	126.1	47.9	60
1984/85	85.0	139.1	54.1	61

* Depreciation based on replacement values; interest charges are included.

Source: Ref. 1

Losses during the first half of the 80s have also been high as shown by Table 8.1, indicating a cost recovery of about 55%. Revenues have been calculated by splitting cross-border tariffs on a *pro rata* basis. Expenditures include depreciation charges based on replacement values as well as interest charges. It is believed that the data include the results of the road services, but this is unclear. The data pertain to both passenger and freight operations, but the role of the former is small, contributing about 6% to revenues.

As shown by Table 8.2, the lowest cost recovery was obtained for some of the branch lines. This is the background to SATS desire to close these branch lines in the early 80s (Gamams to Gobabis, Outjo to Otjiwarongo and Aus to Lüderitz), and to a similar recommendation made by the ACTS (with the modification that Gamams to Windhoek/Strijdom Airport Section should be retained).

It should be mentioned that losses for the operations of the port of Lüderitz during the SATS period were apparently also heavy. In FY 1984/85, revenues were R 0.52 million and expenditures R 0.87 million. However, in comparison with the railways these losses were small.

The Financial Performance

The financial statements for TNL's first 9 months of opera-

Table 8.2 Operating Results for Different Sections of the Namibian Railways in FY 1984/85 (R million)

Section	Revenue	Expenditure	Loss	Cost recovery (%)
Nakop-Windhoek	45.7	73.4	27.7	62
Windhoek-Walvis Bay	20.5	31.6	11.1	65
Kranzberg-Tsumeb/Groot fontein	15.9	23.0	7.1	68
Seeheim-Lüderitz	0.7	5.7	5.0	12
Gamams-Gobabis	2.1	4.3	2.2	49
Otjiwarongo-Outjo	0.1	1.1	1.0	9
TOTAL	85.0	139.1	54.1	

Source: Ref. 1

Table 8.3 TNL Income Statement for Period 1 July, 1988 — 31 March, 1989 (R 000)

	Total	Rail, Road, Lüderitz	Namib Air
Operating income	135,562	128,519	7,043
Operating expenditure	117,633	111,481	6,152
Operating surplus (deficit)	17,929	17,038	891
Depreciation	5,463	4,408	1,055
Net operating surplus (deficit)	12,466	12,630	(164)
Interest charges	1,947		
Other income	5,051		
Extraordinary items	2,464		
Net income	18,034		
Appropriation to reserve fund for replacement of assets	33,144		
Loss	15,110		

Source: NTC Annual Report

tion give a different picture than the above-mentioned data on SATS performance (see Table 8.3). The reported loss is much smaller, although corrections have to be made for a full year. It should also be emphasized that different accounting practices are followed and that TNL does not have any debts to service for its overland operations.

In particular, it should be pointed out that TNL accounts for what is called appropriation to reserve fund for replacement of assets. Appropriations are based on the replacement value of movable assets spread over their estimated remaining useful lives. Although akin to what SATS calls additional depreciation, the values differ, in particular as TNL did not take over any depreciation funds from SATS worth mentioning.

According to TNL, the present accounting practices probably overstate the losses during the first 9 months of operations. The reason given is that the provision for replacement reserves was inflated and also included proceeds from the sale of assets.

The basis for TNL's claim is questionable, however, as a proper evaluation of TNL's financial position has to be based on an estimation of the real capital costs incurred at present. The capital costs comprise two elements, viz. capital depletion of those assets which have to be replaced over the next 20 to 30 years to sustain operations, and interest charges (i.e. basically in accordance with the SATS accounting practices).

An approximate calculation based only on the rolling stock and equipment required for TNL overland operations indicates that present capital costs on an annual basis should be at least about R 70 million. Using this estimate, in lieu of TNL's estimate of the capital costs, indicates that the annual loss for the rail, road and port operations is currently about R 40 million, or about R 30-35 million on a 9 months basis. This is much higher than indicated by TNL's financial statements. Most of the losses accrue in the railway operations. It should be emphasized that all the above values should be seen as indicative only, as the detailed data are not available.

The present losses appear, nevertheless, to be smaller than during the SATS era, and give some credence to the claim by TNL staff, that SATS accounting practices tended to overstate the costs of operations. The main reson for the poor financial performance of the Namibian railways is the size of the network. As a whole, utilization of the network in Namibia is low and probably very low. The annual ton-km performance per km of network amounts to about 0.85 million. The corresponding ratios for Zambia Railways, TAZARA, Zimbabwe Railways, and the South African Railways are respectively 1.1, 1.0, 1.9 and 3.8 million.

Furthermore, tariffs in Namibia are believed to be low, the reason being the SATS tariff structure, which implies that low-valued goods and goods transported over long distances are often subsidised by other goods and transports. Most goods transported by rail in Namibia today belong to these categories. The typical example is coal which is carried about 2 400 km at SATS lowest tariff. According to the report of the ACTS, 87% of the goods to and from South Africa, 59% of the freight within Namibia and 73% of total freight were transported below cost in FY 1984/85.

Finally, it cannot be ruled out that operations have been inefficient. It is often believed that parastatal organisations, sheltered from a competitive environment and with an ability to rely on the government for financial guarantees or subsidies, do not have an incentive to operate efficiently. A report by Dr. de Villiers seems to indicate that such a charge can also be levelled at SATS (see Chapter 4). Fortunately, however, the indications are that TNL has improved productivity since becoming responsible for operations.

Subsidies

As mentioned, the authorities in Namibia covered part of the losses incurred by SATS. The exact formulas used for determining Namibia's contribution to the losses of the guaranteed lines, and the costs in respect of the training centre and salary parity, are not known.

Data on how much has been paid by Windhoek are also conflicting and different data are provided by (i) the Report of the Auditor-General for the accounts of SATS, (ii) the Report of

the Auditor-General for the accounts of the CRF, and (iii) by the Report of the ACTS. Data on the money paid from the CRF for the period until FY 1984/85 as given by the Namibian Auditor-General are, nevertheless, of the same order as in the other reports (see Table 8.4).

In terms of the Memorandum of Agreement (see above) Windhoek was made responsible for financial losses, with effect from FY 1985/86, although SATS contributions would be phased out over a 3-year period. In order to estimate the amount of money to be paid to SATS, depreciation was to be calculated at historical values and interest charges were to be excluded. The estimates were made by SATS. Apparently, capital investments have also been borne by the CRF during the transition period, although there is no reference to capital outlays in the available documentation. Such items only appear in budget estimates and tables of the audit reports on the CRF. Again, data provided by different sources are conflicting, and Table 8.4 should therefore be treated with caution.

Table 8.4 Subsidies and Capital Injections for the Namibian Railways and the Port of Lüderitz (R million)

Financial Year	Borne by CRF		Borne by SATS
	Operations	Capital	
1979/80	7.32	—	N.A.
1980/81	4.90	—	N.A.
1981/82	3.49	—	N.A.
1982/83	9.33	—	N.A.
1983/84	14.47	—	N.A.
1984/85	12.37	—	N.A.
1985/86	47.70	0.17	8.29
1986/87	45.33	3.96	6.40
1987/88	39.50	14.59	4.13
1988/89	40.00*	0.44	0.0
1989/90	11.55**	24.45***	0.0

* 13.0 to SATS for the first 3 months of the FY and 27.0 to NTC in the form of shares (viewed as capital by TNL)
** Fuel subsidy
*** New shares

Sources: Data on CRF from Report of Auditor-General on the Accounts of the CRF up to FY 1987/88 and thereafter from Estimates. Data on SATS from Report of Auditor-General on the Accounts of SATS.

The data in Table 8.1 and Table 8.4 suggest that SATS bore the lion's share of the losses until FY 1985/86, but also that losses in recent years appear to have been contained. The losses are, however, huge. TNL claims that it will require up to 5 years to rectify the current financial situation, and to eliminate the losses (based on current accounting practices).

8.5 Conclusions and Recommendations

Despite its young age, TNL is a well-established organisation, well on its way to making the Namibian railways and the port of Lüderitz independent of SATS and South Africa. It is a white — Afrikaans speaking — organisation. There are apparently some important gaps in the manning of its establishment but not such that operations are clearly disrupted or affected. It seems unlikely that there will be a significant and crippling depletion of staff after independence. However, there may be a need to step up manpower training soon after independence.

The powers given to TNL should not be an immediate concern, as TNL's actions are and will be circumscribed by its reliance on financial assistance from the government, including indirectly in the form of tax exemption. It would appear to be more urgent to first formulate a distinct transport policy for independent Namibia to ensure a systematic approach to the future of all transport modes.

The main problem of TNL is its financial position. As will be discussed in Chapter 11, the bleak market prospects for the railways will aggravate the situation during the 90s. There is no way of avoiding the need to do something about this situation and action will be required sooner or later. It goes without saying that none of the neccessary measures will be appreciated, as they will have to address the problems identified above.

Thus, services will have to be curtailed, tariffs may have to be raised and resources will have to be used more efficiently. As a whole, the present structure of TNL appears to be suited for implementing these reforms. It is profit-oriented, and its staff appears also to be geared in such a direction.

9. ROAD TRANSPORT AND INTERMEDIARIES

9.1 Introduction

This chapter will identify those operators in the transport sector which have not been covered in Chapters 6, 7 and 8. Initially, the vehicle fleet is described (Section 9.2); Section 9.3 covers road transport, with the exception of taxi services, and Section 9.4 the market for and role of the intermediaries, i.e. freight forwarding agents and travel bureaus.

9.2 The Vehicle Fleet

Data on the vehicle fleet in Namibia are hard to come by. One reason for this is that there is no complete computerised data base for registered vehicles. Another is that public institutions are empowered to licence their own vehicles. Such vehicles are therefore not included in Table 9.1, which refers to the year 1986. This also applies to the road vehicle fleet operated by SATS in Namibia as part of their road services and for own use in that year. It is believed that the public vehicle fleet comprises about 6,000 units. Vehicles registered in Walvis Bay are also not included in Table 9.1.

The fleet of commercial vehicles (trucks, pick-ups, buses) has grown rapidly during the 80s, at about 19% p.a. The growth in the fleet of cars has been more modest, albeit still impressive at almost 8% p.a. The growth rate in the total fleet has been about 15% p.a. during the eighties. Almost half (45%) of the vehicle fleet is based in Windhoek.

Table 9.1 Licenced Vehicles in 1986

Type	No
Motorcycles, tricycles	5 519
Cars	39 133
Trucks, pick-ups, buses	
750 - 1500 kg	28 587
1501 - 10500 kg	17 273
10501 -	530
Total fleet of commercial vehicles	46 390
Trailers	8 541
Caravans	2 605
Other	1 527
Total	103 715

Source: DOT

The vehicle fleet comprised about 100,000 units in 1986, excluding trailers and caravans but including publicly owned vehicles. This can be compared with Botswana and Zimbabwe, where there were, respectively, 51 000 and 316 000 similar units in 1986. The vehicle density is thus about 50% higher in Namibia than in these two countries. The fleet of heavy commercial vehicles (above 10 tonnes carrying capacity) also appears to be relatively large. In Zimbabwe there were about 1 250 heavy trucks in 1986.

9.3 Road Transport

Economic Regulation of Road Traffic

The Road Transportation Act (Act No. 74 of 1977), as amended by Acts of the Assembly and AG Proclamations, and explained by regulations issued in accordance with these Acts and Proclamations, spells out the framework for the economic regulation of road transport. The Act defines road transportation as the transport of people or goods on a public road by means of (i) a motor vehicle for profit, (ii) a motor vehicle in the course of occupation or trade or business, i.e. for own-account operations, and (iii) a hired vehicle.

It is illegal for anybody to undertake road transport without a valid public or private permit. The permit stipulates the type of commodities which may be conveyed and indicates the route which must be followed or the geographical area for which the permit is valid. In order to obtain such a permit, the haulier must prove, among other things, that there is a need for the proposed service. All existing hauliers who are in possession of a similiar authorisation have the right to object to a permit being issued. This privilege is also enjoyed by the railway. In the case of local public transport, the concerned municipality is to be consulted.

The purpose of this is claimed to be the promotion of the road and rail transport systems on a "sound" basis. It is not intended to afford the railway or other permit holders special protection. One of the reasons for reforming this system at present (Chapter 4) is, however, that the Act in effect has served the interests of the established operators.

The Act provides for a number of exemptions from its stipulations. Geographical areas can thus be declared exempted (there are none in Namibia today). Other forms of exemptions refer, *inter alia*, to (i) farmers carrying their own products and inputs on their own vehicles, (ii) local authorities, (iii) certain small vehicles and (iv) certain goods including cattle, small stock, gravel, stone, sand, milk, cold drinks, furniture and perishable goods (vegetables and fruits).

The Act thus provides for the regulation of entry into a market and of the quantity to be supplied, both in respect of line and charter mode operations. Exit from a market requires a notification to be sent to the Road Transportation Board (RTB) 30 days before the services are discontinued. The validity of permits can be restricted in time, but it has become more and more common in recent years to issue permits for indefinite periods of time. Mention should also be made that there is a separate system of permits, referred to as temporary permits.

Two important modifications were made to the Act in 1988 by the TGNU. The first amendment changed the stipulations of a public permit pertaining to a motor car, in that such vehicles were allowed to undertake transports in an *area* rather than only along a route. The implications are that, for example, taxis in Windhoek are no longer restricted to ply a route between Katutura and the downtown area, but can offer services throughout the city area. This has probably made the taxi business less segregated.

The second amendment of 1988 empowered the Cabinet to reserve certain goods for carriage by the railway only. The regulations envisaged under this amendment were issued and became effective in November 1989. The exempted commodities are: 1. ores and minerals and mineral concentrates, 2. cement, 3. lime, 4. animal fodder, animal supplement feeds and animal licks, 5. imported maize, and maize products, 6. fishmeal, 7. liquid fuels, excluding LPG, 8. sugar, 9. metal ingots, 10. goods as defined in the Hazardous Substances Ordinance (Ordinance 14 of 1974), 11. worked and unworked steel, 12. unworked, worked and processed wood, 13. explosives or blasting materials, and 14. containers.

This amendment was envisaged by the ACTS in its 1986 report (ref. 1). The ACTS proposed that the Namibian railway be protected from competition in certain vital markets for a five-year transition period, before full competition would be allowed between road and rail (see further Chapter 4). It is understood that the purpose of the Second Amendment Act of 1988 is still the same, although the Amendment Act is, in principle, valid for an indefinite period of time. It is also primarily intended to stop the issuance of new permits, while hauliers with valid permits will not see these changed.

Only the tariffs of scheduled bus services and taxi operations are fixed by the RTB. Taxi operations include vehicles with up to 9 passengers, including the driver. Road haulage and charter operations are not regulated. However, customers may complain to the RTB, which can then also set maximum tariffs in respect of these services, if market conditions are found to be monopolistic.

Operators

Bus and truck operators are private. There appear to be only two exceptions. The bus service to and from Katutura in Windhoek is run by the city council and is operated on a non-profit basis. The other exception is the TNL road services.

TNL has a fleet of 110 road vehicles, consisting of over seventy 6x4 International Harvester "Pay Star" truck tractors and over thirty Mercedes or Leyland 4x2 vehicles. TNL also has about 200 trailers and semi-trailers. The fleet is in general old and many units are due for replacement.

The TNL vehicles are used to deliver rail freight for distances of up to 250 km from a rail head. The services are scheduled. Major vehicle service depots are located at Windhoek, Grootfontein, Tsumeb, and Keetmanshoop, and minor depots at Otjiwarongo, Outjo, Gobabis, Mariental, Karasburg, Rehoboth and Walvis Bay. There are workshops at all depots, except Otjiwarongo.

There are all in all about 50 private bus and trucking companies in the country. Table 9.2 identifies 29 of the major companies. These are Namibian companies, but some of them may be controlled by South African companies. This is, for instance, the case for Jowells Transport, which is owned by Trencor Limited.

Trucking companies not included in Table 9.2 are normally small and to be found in smaller towns. There are thus small outfits in towns such as Tsumeb, Otjiwarongo, Outjo, Gobabis, Mariental, Keetmanshoop and Lüderitz, which collaborate with TNL. In Ovamboland there are several companies operating trucks up to 20 tonnes.

Of the trucks carrying traffic across the border in 1988, 59% were registered in Namibia. Foreign vehicles performed 52% of the tonne-km in 1988 within the country, however.

There are few scheduled bus services. The only other municipal service is operated by F.P. Du Toit Transport between Khomasdal and Windhoek centre. Du Toit also provides services between Windhoek and Rehoboth (daily), Windhoek and Oshakati (week-ends), Windhoek and Windhoek Airport (serving all flights), and special services during school holidays. The long-distance services provided by F.P. Du Toit Transport under the trade name Mainliner, connect Windhoek with Cape Town, Johannesburg, Walvis Bay and Tsumeb several days every week.

Troost Transport, which is based in Walvis Bay and registered in Cape Town, operates a once weekly service, under the trade name Ekonoliner, from Walvis Bay to Cape Town, via Windhoek. Troost also transports Rössing Uranium Mine personnel between Swakopmund and the mine.

TNL is small in bus transport; it operates a service between Windhoek and Gobabis on week-ends. Since June 1989, a rail service has been operated during week-days between these two places. TNL also operates non-scheduled services between Ondangwa and Rosh Pinah. Similar services are offered by other major bus companies.

There are numerous other companies, which offer long-distance services by bus, including minibuses. These are owned by individuals who generally do not operate in the name of a registered company. Nor are their services normally operated according to a fixed timetable, although they are run more or less on a regular basis. Such services are, for example, offered between Grootfontein and Otjituo in Hereroland, Okakarara and Windhoek, Gobabis and Oshakati, Lüderitz and Oshakati, and Swakopmund and Oshakati.

The road transport industry does not appear to be very concentrated, at first sight. A closer look may, however, reveal a substantial degree of concentration in certain segments of the goods market, defined by type of goods carried and geographical area of operation. The industry is dominated by the white community. It seems likely that the present structure is being reinforced by the regulatory regime enshrined in the Road Transportation Act.

The major player in the sector is F.P. Du Toit Transport, which is a local firm, but with branch offices and depots in Cape Town, Johannesburg, Durban, Port Elizabeth, Bloemfontein and Gaborone. In South Africa the company is known as Mainline Carriers. Du Toit Transport is primarily involved in refrigerated transports of meat to South Africa. Back hauls are provided by food and perishables. The company also transports cattle to South Africa, with perishables as return loads. Its role in bus transport is indicated by Table 9.2.

Another important player is Trencor Limited, which own Jowells Transport and Stuarts Transport. Jowells distributes bulk oil in the Windhoek and Gobabis areas, carries ores from the Otjihase mine to the nearest rail head and has recently started to transport fluorspar to Walvis Bay from the Okoruso mine. Stuarts Transport, which apparently has no vehicles registered in Namibia, concentrates on transports between Namibia and South Africa and has contracts with

Table 9.2 Major Private Trucking and Bus Companies

Company	Station	Reg. comp	Service	Vehicle type	Fleet size
Afrovan	Windhoek	yes	Furniture Removal	25 tonne Interlinks	10
Behr's Transport	Swakopmund	no	General Local Freight	3+5 tonne Trucks	2
Blaauw's Transport	Swakopmund	yes	General Freight	25 tonne Flat Beds	10
			Bulk Haulage (salt)	25 tonne Tippers	10
Cross Country Carriers	Windhoek	yes	Express Parcel	5 tonne Trucks	8
Etosha Furniture Removal	Windhoek	yes	Furniture Removal	25 tonne Interlinks	16
F.P. Du Toit Transport	Windhoek	yes	Bus Service	50 Seater Busses	25
			General Freight	20-30 tonne Flat Beds	10
				Refrigerated Trucks	35
				Low Beds	2
				Fuel Tankers	5
N&J Furniture Removal	Windhoek	yes	Furniture Removal	24 tonne Pantechnicons	5
Stuttafords Van Lines	Windhoek	yes	Furniture Removal	25 tonne Interlinks	5
Kempton Furniture Removals	Windhoek	yes	Furniture Removal	25 tonne Interlinks	7
Windhoek Van Lines	Windhoek	yes	Furniture Removal	25 tonne Interlinks	8
Compass Furniture Removal	Windhoek	yes	Furniture Removal	25 tonne Interlinks	10
Jowells Transport	Windhoek	yes	General Freight	20-30 tonne Flat Beds	35
				Fuel Tankers	8
				Low Beds	4
Mariental Transport	Mariental	yes	Bus Service	2x60 seat + 1x34 seat	3
Metra	Windhoek	yes	General Freight	Gen.del.trucks (3-7ton)	3
				Bitumen Tanker(9000 l)	1
			Waste Disposal	7 tonne Trucks (spec)	6
Myburgh Transport	Windhoek	no	Livestock	20 tonne Trucks	5
Namibia Bulk [1]	Grootfontei	yes	Fuel Haulage	Fuel Tankers	12
Road Runners [2]	Grootfontei	yes	General Freight	Refrigerated Trucks	4
				25 tonne Flat Beds	58
				30 tonne Interlinks	10
				22 tonne Tippers	16
SWA Safaris	Windhoek	yes	Safari	Busses(15,27,35,30 seat)	15
Rousseau & Sons	Windhoek	no	Bulk Haulage (gravel)	15 tonne Tippers	10
Witvlei Transport	Witvlei	no	Livestock	20-30 tonne Trucks	29
Sukses Transport	Okahandja	no	Livestock	15 tonne Trucks	4
Langpad	Otjiwarongo	yes	Livestock	20-25 tonne Trucks	10
Woest Transport	Sukses	no	Livestock	15-35 tonne Trucks	7
Andersons Transport	Okahandja	yes	General Freight	30 tonne Flat Beds	48
Nel Transport	Omaruru	no	Livestock	8-15 tonne Trucks	3
S.W. Breweries (private)	Windhoek	yes	Beer & Beverages	25 tonne Flat Beds	25
Troost Transport	Walvis Bay	yes	Bus Service	40-60 Seaters	10
				20-25 Seaters	3
			Furniture Removal	16 tonne Pantechnicons	9
Rössing Uranium	Swakopmund	yes	Personnel Transport	44 Seater Busses	30
				88 Seater Busses	5
				102 Busses	2
Wesbank Transport	Walvis Bay	yes	General Freight	32-40 tonnes Interlinks	15

1) Recently sold to TransNamib Ltd
2) Includes South West Transport; the company is affiliated with Woker Freight Services

Rössing Uranium Mine. It transports machinery to Johannesburg, and salt to South Africa and returns with cement and paper.

Long-distance road traffic is normally undertaken with 7-axle vehicles carrying 30 tonnes. The typical configuration is that of a mechanical horse with a semi-trailer. Although services are often regular, they are to be viewed as charter services (except TNL services).

Mention should, however, be made of the company Cross Country Carriers, which offers daily parcel services between 12 towns, including Walvis Bay. Both trucks and air transport are used.

There is a trade association for road transporters known as the Public Carriers Association of South West Africa, better known under its Afrikaans acronym PADSWA. It draws its membership mainly from the larger and established operators. In recent years, P.F. Du Toit Transport has played a leading role in this organisation.

9.4 Intermediaries

There are about 10 companies acting as customs clearing and freight forwarding agents, and often also as agents of shipping lines. There are also about 5 independent travel bureaus, not part of the network of air, rail or bus operators.

Intermediaries are not subject to any specific regulations. Entry and prices are free, and the market is viewed as competitive. The only area subject to some control is customs brokerage. Firms have to register as customs brokers with the

South African Department of Customs and Excise and put up a customs bond in order to avoid having to pay debts in advance in respect of customs duties.

For customs clearance in Walvis Bay, there is an agreed tariff, established through the Walvis Bay Shipping, Clearing and Forwarding Association. Otherwise, there is no formal collaboration between agents in Namibia, and attempts to establish a trade association have as yet failed.

The major player in the market is Woker Freight Services, which is also involved in the travel market. Woker Freight is established in Walvis Bay, Windhoek and Lüderitz. In 1986, 55% of the shares were owned by Renfreight, which is controlled by the Safren Group of South Africa.

The second largest freight forwarding company is Kühne & Nagel, a Swiss outfit operating worldwide and half-owned by Lonrho. It recently acquired a local firm, Namib Cargo, which concentrated on the air freight market in Southern Africa. Kühne & Nagel operates out of Windhoek and Walvis Bay.

Other companies include Transworld Cargo, Freightcor International and Grindrod Shipping. Transworld focuses on the South African market, while Freightcor recently ceased operating in the international market and is now associated with the domestic carrier Cross Country Carriers (see above). There are apparently local interests in these companies.

Grindrod has offices in Lüderitz, Walvis bay and Windhoek, and collaborates with the Walvis Bay-based company Pescanova Ship Agents and Brokers. Grindrod is owned by the Grindrod Unicorn Group of South Africa, which also owns Unicorn Lines, as well as Swakop Line, the only shipping line registered in Namibia.

With the exception of Woker Travel Services, the major independent travel bureaus are apparently controlled by local or non-South African interests.

10. TRANSPORT DEMAND

10.1 Introduction

There is a substantial amount of information available in Namibia about primarily goods but also about passenger traffic. Data have been generated through both specific surveys, and the day-to-day statistics produced by operators. There is, however, no central statistics bureau concerned with the collation of data and the production of time series. Nor is the DOT involved in any similar activity. This is a shortcoming, which probably characterises many other sectors of the Namibian economy, and which will have to be addressed after independence.

In the rest of this chapter, some of the available data are presented. Section 10.2 covers domestic goods traffic, Section 10.3 domestic passenger traffic and Section 10.4 cross-border flows.

10.2 Goods Traffic

Railway Traffic

The goods traffic carried by rail during the past 10 years is shown in Table 10.1. The reasons for the decline in traffic include the stagnation of the economy and decreases in the transport of salt, coal and mining products, largely unrelated to the economic development. For example, the import of coal from South Africa has decreased substantially during the eighties, as Namibia has been able to reduce its dependence on coal-fired power stations by relying instead on supplies from the Ruacana hydro-power plant and on the transmission line from South Africa, which was commissioned in 1982.

Table 10.1 Rail Transport

Year	Net tonne kilometres (000)	Net tonne (000)
1979/80	3 545 441	3 975
1980/81	2 866 490	3 210
1981/82	3 307 628	3 588
1982/83	2 557 213	2 954
1983/84	2 269 540	2 475
1984/85	2 150 172	2 243
1985/86	1 987 590	2 212
1986/87	1 807 539	2 012
1987/88	1 907 637	2 089
1988/89	2 001 013	2 244

Source: TNL

The increase in the amount of traffic carried during the FY 1988/89 is only to a limited extent explained by transports on behalf of the South African Defence Force and UNTAG as a consequence of the implementation of UNSCR 435. The (revised) forecast by TNL for FY 1989/90 indicates no increase in traffic in comparison with the previous year.

The commodities conveyed by rail at present are shown in Table 10.2. The significant decline in sulphuric acid, which is transported by dedicated wagons from Walvis Bay to the Rössing mine at Arandis, is due to the fact that Rössing has started to manufacture its own. The input used is pyrites, which are transported from the Otjihase mine east of Windhoek. Manganese ore is imported from South Africa, for use by Rössing.

Cattle and small stock transports, which used to be important to the railway, have dwindled to next to nothing and are not even identified as a separate commodity in Table 10.2. Almost all these transports are nowadays by road. In 1987, only 5% of the cattle and less than 1% of the small stock marketed in South Africa were sent by rail.

Most railed goods are transported over huge distances, particularly if the distances in South Africa are also considered. Transports to and from Transvaal, for example coal, cement, salt, coke, wheat, steel and timber involve transport distances ranging from 2 000 to over 3 000 km. Distances for goods transported within Namibia are about 500 km.

Table 10.2 Commodities Conveyed by Rail (000 tonnes)

COMMODITIES	1987/88	1988/89
Liquid fuel*	343	408
Containers	265	271
Coal and coke	188	170
Cement	176	199
Pyrite	160	218
Copper concentrate	79	89
Zinc concentrate	67	86
Maize	65	83
Salt	60	60
Sulphuric acid	44	1
Lead ingots	41	37
Lead concentrate	38	53
Copper ingots	34	38
Fishmeal	28	46
Base metals (unspecified)	27	28
Agricultural products	26	13
Steel products	25	26
Sugar (containerised traffic excluded)	24	25
Timber	20	20
Explosives	18	16
Lime	17	13
Manganese ore	14	19
Foodstuffs (containerised traffic excluded)	28	29
General merchandise (containerised traffic excluded)	236	230
Liquor (containerised traffic excluded)	5	6
Industrial raw matrials and chemicals	29	30
Sundries (containerised traffic excluded)	32	30
TOTAL	2 089	2 244

* Statistics provided by TNL and other official sources do not use the word fuel, but "other" on account of confidentiality. It is the Consultant's interpretation that "other" stands for liquid fuel products.

Source: TNL

Port Traffic

Data on traffic through the port of Walvis Bay are confidential. The data for the first half of the eighties shown in Table 10.3 are from the report of the ACTS (ref. 1), and are clearly too low. Total traffic is more likely to be about 1.2-1.3 million tonnes, including 0.45 million tonnes of liquid fuel

products, 0.4 million tonnes of salt, about 150 ktonnes of mineral and metal exports and some 0.2-0.3 million tonnes of other goods (see further Tables 10.6-10.9).

Table 10.3 Port Traffic (000 port tonnes)

FY/PORT	WALVIS BAY			LÜDERITZ	
	In	Out	Total	In	Out
60/61	309	562	871	21	8
61/62	317	589	906	18	12
62/63	300	550	850		
63/64	350	600	950		
64/65	420	717	1 138 **		
65/66	469	691	1 171 **		
66/67	513	748	1 314 **		
67/68	652	746	1 490 **		
68/69	615	812	1 494 **		
69/70	657	702	1 400 **		
70/71	736	591	1 370 **		
71/72	722	507	1 267 **		
72/73	727	508	1 265 **		
73/74	766	638	1 456 **		
74/75	748	796	1 583 **		
75/76	900	750	1 650		
80/81			710 *	6	4
81/82			690 *	4	5
82/83			585 *	10	8
83/84			570 *	16	7
84/85			482 *	5	7
87/88				7	7
88/89				7	7

* It is unlikely that these data include liquid fuel products.
** Including transhipped goods

Sources: refs. 1, 45, 56 and 67, and TNL.

Table 10.4 Lüderitz Harbour Traffic (port tonnes)

COMMODITY	1987/88		1988/89	
	In	Out	In	Out
General	200	250	450	50
Cement	800		1 100	
Timber	250		350	
Frozen fish	50		100	
Liquid fuel*	4 400		5 100	
Seaweed		600		650
Guano	1 500			
Crayfish		6 200		6 200
TOTAL	7 200	7 050	7 100	6 900

* See Table 10.2

Source: TNL

The fact that Lüderitz is not a major port is borne out by both Tables 10.3 and 10.4. The port is not used for transhipping between rail and sea. Most goods either originate in or are destined for Lüderitz, including its environs. Liquid fuel products comprise only gas oil, while petrol is transported to Lüderitz by rail from Walvis Bay. The crayfish is mainly exported to Japan.

The off-shore bouy at Oranjemund (cf. Chapter 5) is used for supplying fuel products to the CDM diamond mine operations. The unloaded quantities are estimated at about 30 ktonnes in 1988.

Road Traffic

A survey carried out in 1984 (ref. 14) indicated a total annual demand for long-distance transports of about 1.5 million tonnes. The average transport distance was about 500 km, giving a total annual transport work of about 750 million tonne-km. The 15 most important commodities comprised 61% of the total traffic measured in tonnes and 73% measured in tonne-km. This group included cattle, fresh fruits and vegetables, steel, meat, furniture, gravel, stone and sand, salt, sugar and milk and cold drinks.

The SATS/TNL road services handled about 161 ktonnes in 1987/88 and 186 ktonnes in 1988/89. More than 50% was fuel transports.

Transport distances are generally long. Most imported goods, like steel and machinery are transported between 1 000 and 1 300 km within Namibia. Exports, for example meat and cattle, cover distances of between 700 to 1 000 km within Namibia.

Air Freight

Air freight is small in comparison with other modes of transport. The available data may, however, not give the full picture, as they probably exclude uranium oxide (about 4 ktonnes p.a.).

In 1988, SAA transported 1 500 tonnes of goods to Namibia and 300 tonnes from Namibia. Major imports comprised paper and printed matter (400 tonnes), motor vehicle spares (400), beverages (80) and agricultural products (70). Similar types of products were also exported.

10.3 Passenger Traffic

Railway Traffic

Data on passenger traffic handled by SATS/TNL during the past two years are presented in Table 10.5. The reasons for the decline may be the recent introduction of long distance bus services between some of the larger cities in Namibia and Cape Town and Johannesburg, and curtailed rail services. About 2% of the rail passengers travel first class, 15% second class and the rest third class.

Table 10.5 Rail Passengers

	ROUTE	1987/88	1988/89
1.	Windhoek-Walvis Bay	101 000	83 400
2.	Kranzberg-Northern stations of Namibia	70 800	60 400
3.	Windhoek-South African border	204 900	120 800
4.	Keetmanshoop-Lüderitz	11 200	12 300
	TOTAL	387 900	276 900

Source: TNL

Road Traffic

There are very few data on domestic public transport. TNL transport about 80 000 passengers annually. About 20 000

persons crossed the border with South Africa by bus in 1988, while 200 000 went by car.

Air Traffic

Air Namib's domestic traffic amounts to 120 000 passengers a year. About 20 000 passengers travel by the SAA route between Frankfurt and Windhoek Airport per year and about 200 000 passengers between Windhoek Airport and various South African airports. Traffic at van der Wath Airport has declined from 6-7 000 passengers at the beginning of the 80s, to between 3-4 000 in recent years.

The number of aircraft movements is very small. At Windhoek there are about 7-8 000 movements p.a. (20 per day), at van der Wath probably less than 2 000 per year (about 4 per day) and at Eros about 20 000 per year (about 50 per day).

10.4 International Traffic

Goods Transport

This section provides data on Namibia's import and export traffic in 1988, measured in metric tonnes; see Tables 10.6-10.9. Most of the data derive from the Survey of Cross-border Flows (ref. 10), sponsored by the Department of Economic Affairs, including data on traffic at the following monitoring posts: Swakopmund (to and from Walvis Bay), Nakop (to and from South Africa), Noordoewer (to and from the Cape Province), Buitepos (to Ghanzi in Botswana), Ngoma (to Eastern Caprivi from Botswana), Lüderitz and Oranjemund. These estimates have, however, been refined further to obtain traffic figures for three dimensions, viz. (i) type of commodity, (ii) entry or exit point and (iii) mode used (rail and road; data on port traffic and air freight have been given above). The supplementary estimates presented here reflect a considerable amount of guesswork, albeit based on several other sources of information, including the traffic survey carried out in 1984 (ref. 14).

The data do not include traffic in the prot of Walvis Bay, as that information is confidential. For this reason estimated quantities do not reflect consumption in Walvis Bay either, although it has not been possible to ensure this by any means. Considerable insight can be gained into the traffic through the port of Walvis Bay from the data on traffic at the Swakopmund monitoring post.

Table 10.6 gives a summary of the flows. To these flows should be added 21 ktonnes carried by road transport and 71 ktonnes carried by rail between the Walvs Bay enclave and South Africa. Most of this latter traffic is believed to comprised fishmeal in the case of road transport and salt and fishmeal in the case of rail transport, i.e. most of the traffic is from Walvis Bay and to South Africa.

Table 10.7 contains an estimate of the import/export traffic carried by rail. The totals correspond to data in the Survey on Cross-border Flows, but several of the individual data represent quesstimates. Additional details are given in the notes of the table.

Table 10.6 Estimated Import and Export Traffic in 1988 (tonnes)

Mode	Imports	Exports	Total	%
Road*	404 800	300 000	704 800	30.8
Rail*	1 308 000	232 000	1 540 000	67.1
Air	1 500	300	1 800	0.1
Sea**	38 300	6 900	45 200	2.0
Total	1 752 600	539 200	2 291 800	100.0
%	76.5	23.5	100	

* Including traffic to and from Walvis Bay
** Lüderitz and Oranjemund

Source: Ref. 10.

Table 10.7 Rail Traffic in 1988 (000 tonnes)

COMMODITY	NAKOP		SWAKOPMUND		TOTAL			
	In	Out	In	Out	In	Out	Total	Note
Liquid fuel*	33		375		408		408	1
Cement	178		7		185		185	2
Constr. mat.	128				128		128	
Coal and coke	163	3			163		163	
Agri. prod.	88	4 5	35		123	5	128	
Food	66				66		66	
Ores and minerals	51	55	23	60	74	115	189	5
Non-ind. chemicals	50		3		53		53	
Beverages	5				5		5	
Food for animals	10		20		30		30	6
Industrial chemicals	14		4		18		18	
Metals and metalprod.	17			70	17	70	87	7
Wood and furniture	9				9		9	
Vehicles, mach., equip.	13				13		13	
Other	16	33		9	16	42	58	
TOTAL	841	93	467	139	1 308	232	1 540	8

* See Table 10.2

Source: Consultant's estimate, ref. 10.

Note 1. The total demand for petroleum products, including liquid fuels and bitumen, is about 510 ktonnes, of which diesel makes up 240 ktonnes, HFO 5 ktonnes, gasoline 225 ktonnes, aviation fuels 10 ktonnes, kerosene for household consumption 20 ktonnes and bitumen 10 ktonnes. 65 ktonnes are trucked from Walvis Bay and South Africa, 5 ktonnes are imported via Lüderitz, 30 ktonnes of diesel are pumped via an offshore buoy at Oranjemund, and 1 to 2 ktonnes are imported from Botswana to Eastern Caprivi (similar amounts are exported to Ghanzi).

Note 2. Shipped in pockets but also in bulk in cement tankers. Total imports were 210 ktonnes in 1988.

Note 3. About 60 ktonnes for the van Eck power plant in Windhoek, and most of the rest to Tsumeb, thereof about 25 ktonnes of coke.

Note 4. Includes, *inter alia*, sugar imported via Walvis Bay, unmilled white maize, wheat and wheat flour, rice and oil seeds imported via Nakop.

Note 5. Imports include manganese ore destined for Rössing and refined lime. The data pertaining to Swakopmund include salt from Walvis Bay. Exports comprise zinc ores and salt.

Note 6. Presumably mainly yellow maize via Nakop and fishmeal from Walvis Bay. Fishmeal exports from Walvis Bay to South Africa amount to about 30 ktonnes; part thereof was transported by truck.

Note 7. Exports include blister copper (38 ktonnes) and lead (31 ktonnes).

Note 8. Of the total traffic, about 250 ktonnes were shipped in containers.

Tables 10.8 and 10.9 contain data on the import/export traffic carried by road. The goods destined for Oranjemund normally come by way of rail to the railhead at Bitterfontein in South Africa, from they are transported by truck. There is a single-lane bridge across the Orange River which can carry fully laden trucks. Traffic in the other direction is negligible.

Note 1. Indicated values imply a total annual production of salt north of Swakopmund of about 150 ktonnes, as the railway carried about 60 ktonnes, including 25 ktonnes for South Africa.

Note 2. Mainly up to 300 000 cattle and perhaps 600 000 sheep and goats.

Note 3. Mainly chilled and canned beef.

Note 4. Includes, *inter alia*, beverages and manufactured products.

The number of goods vehicles crossing the South African border on an average day in 1988 was about 55 at Nakop and 28 at Noordoewer. Traffic to and from Botswana is intermittent: two vehicles per day cross at both Buitepos and Ngoma. Indications are that truck traffic at Ngoma was considerably higher in 1989, or up to about 10 vehicles in each direction. The traffic across Swakop River was recorded at 139 goods vehicles per day in 1988.

Passenger Traffic

About 540 000 trips vere made across the Namibian borders in 1988, involving 270 000 persons. Their country of residence is indicated in Table 10.10, the mode used is shown in Table 10.11, and the distribution on entry and exit points for persons travelling by road is given in Table 10.12.

About 55% of the trips across the borders are made for holiday purposes or to visit friends and relatives. Business trips comprise close to 40% of the total volume. Traffic across the Orange River at Oranjemund is not included.

Table 10.8 Export Traffic by Road (000 tonnes)

COMMODITY	NAKOP	NOORDOEWER	SWAKOP	TOTAL	NOTE
Salt	97	97	1		
Mining prod.			15	15	
Basic metals		10	10		
Food	5		5	10	3
Agri. prod.	24	50		74	2
Stone, clay and sand			44	44	
Other	2	11	35	48	4
TOTAL	31	61	206	298	
Buitepos				2	

Source: Consultant's estimate, ref. 10

Table 10.9 Import Traffic by Road in 1988 (000 tonnes)

COMMODITY	NAKOP	NOORDOEWER	ORANJE-MUND	SWAKOP	TOTAL
Liquid fuel*	11	18	—	36	65
Beverages	25		8	10	43
Food	23	24	8	5	60
Agricult. prod.	10	10	2	10	32
Vehicles, mach., equipm.	10	—	3	20	33
Construction mat.	9		5	12	26
Primary and interm. prod.	48	8	13	33	102
Other	15	5	8	11	39
TOTAL	151	65	47	137	400

* See Table 10.2

Source: Consultant's estimate, ref. 10

Table 10.10 Cross-border Traffic According to Country of Residence

CONTRY	NUMBER OF PERSONS	%
Namibia	104 000	38.5
South Africa	138 000	51.1
Other	28 000	10.4
TOTAL	270 000	100.0

Source: ref. 10

Table 10.11 Cross-Border Traffic According to Mode Used (1980)

MODE	NUMBER OF TRIPS	%
Air	230 000	42.6
Rail	40 000	7.4
Motor car	700 000	37.0
Goods vehicle	50 000	9.3
Bus	20 000	3.7
TOTAL	540 000	100.0

Source: ref. 10

Table 10.12 Entry and Exit Points for Persons Travelling by Road

CROSSING POINT	TRIPS PER DAY ON AVERAGE	%
Nakop	340	45.9
Noordoewer	355	48.0
Buitepos	25	3.4
Ngoma	20	2.7
TOTAL	740	100.0

Source: ref. 10

11. FUTURE TRANSPORT DEMAND; INTERNATIONAL TRAFFIC

11.1 Introduction

It will be recalled from Chapter 10 that Namibia's total international traffic amounts to about 2.3 million tonnes, excluding Walvis Bay, and to about 2.8 million tonnes if Walvis Bay is included; these values refer to the year 1988. Of the 2.3 million tonnes, 0.7 million are carried by truck and 1.5 million tonnes by rail. Cutting the cake differently: almost 1 million tonnes are routed through Walvis Bay, about 1.25 million tonnes are transported overland between Namibia and South Africa and the remainder makes use of Lüderitz and Oranjemund or is air freighted. All these figures are exclusive of traffic to and from the Walvis Bay enclave.

The purpose of this chapter is now to analyse how this picture may change in the future. Given the nature of the situation — with an absence of detailed economic policies and plans for independent Namibia — the forecasts to be presented here are to be viewed as guesstimates. They are based neither on any formal model of Namibia's economic structure, nor on any detailed market analysis. They have instead been derived from a few assumptions and by making use of readily available literature about the country, although to some extent supplemented by specific research concerning a limited number of the commodities.

It should also be emphasised that the ambition is not to make predictions about the absolute levels of traffic in the future, but to identify some important trends, for example if total imports are likely to grow quickly or not, if the railway is likely to lose markets and if more traffic is likely to be routed by sea. On the other hand, it is hoped that the results of the exercise are robust enough to assist with the identification and design of projects in the transport sector, which need to be in focus during the immediate post-independence period.

Making predictions about future traffic to and from Namibia is not only made complicated by the independence process, but also by the inherent volative development of the economy. One cause thereof is the climate and the fact that the drought cycle regularly results in dramatic changes in the traffic in tandem with the performance of the agricultural sector. The other is the small size of the economy, to a large extent structured around a very limited number of activity centres. Investments in a new mine or in a major water supply scheme may therefore have very significant non-recurrent effects on the demand for transport as also proved by history.

For the problem at hand, there is not much that can be done about this situation in view of the lack of past data and concrete plans for the future. The only information about past import and export traffic that can be made use of here are the data from the recent cross-border survey (ref. 10), which refer to one year (1988). While this year probably is not an exceptional year, the fact that such a thing as a representative year is not a relevant concept in the case of Namibia, means that projections about the future from this single year have little meaning as regards quantities of traffic. On the other hand, it is likely that predicted changes in relative values, for example in route or modal splits, will be more generally valid.

The exercise focuses on two points of time: the first is about 5 years after independence (say 1994) and the other about another 5 years, i.e. at the end of the 90s. A number of assumptions underly — in an unsystematic fashion — the forecasts, and these are reviewed in the following section. All of these assumptions are taken as given and provide for only one option. There is one exception, however, pertaining to the future trade regime chosen by the government of independent Namibia. The two main alternatives are to join the Southern African Customs Union (SACU) and to opt for an independent trade regime. As this choice could have significant effects on the flows of goods, both are explored.

11.2 Assumptions

The following assumptions are reflected in the forecasts:

Overall *GDP* growth has been assumed to equal population growth (as an average) during the first five years, i.e. about 3%, reflecting that growth is at present sluggish and below population growth and that it will take some time before new policies will have their intended effect of increasing economic growth after independence. Consequently, the second five years are assumed to see a higher per capita growth rate of about 5%. The locomotive of the economy is assumed to be the *construction sector* with higher or significantly higher growth rates than all other sectors, with a growth rate rising from 5 to 7%, on average for each five-year period. Several factors explain this development. Initially the construction sector is assumed to be fuelled by the need for providing low-cost housing on a large scale, but later the implementation of a number of infrastructure projects will take over, for example schemes for hydro-power generation and, possibly, new port facilities.

The *agricultural and fisheries sector* is assumed to show a more modest development. The fostering of this sector is not straightforward and will require careful policy analysis. Initially, i.e. on average during the first five years, output of the sector is assumed to match population growth, while the latter five years will see a higher level of growth, at about 4 to 5%, on average.

The *mining sector* is assumed to be growing at a slower pace than the economy at large during the next decade. It is postulated that no major new projects will be initiated during the period, for example related to oil, gas or uranium. There is, on the other hand, scope for a number of smaller projects, which, however, will not significantly change the current picture of this sector, as concerns traffic flows.

Other sectors generating traffic, mainly *manufacturing and commercial activities*, will be growing at a pace slighty above overall growth rate. It is believed that there is a whole host of business opportunities in Namibia, which can be developed purely on the basis of comparative advantage in transport costs. A number of examples are cement manufacturing (everything is imported today), bottling of soft drinks and milk production (substantial imports today) and glass bottle manufacturing (all bottles imported today).

The post-independence period will be characterised by a significant increase in *donor activities*. For the purposes of this exercise they will be assumed to be reflected primarily in the performance of the agricultural and fisheries, and construction sectors. Donor aid will materialise in such things as machinery, equipment and experts, and will have some effects on the direction of flows, as deliveries of hardware will be tied to specific markets.

As mentioned, two different *trade regimes* will be considered. In case Namibia decides to go for its own trade regime, it is assumed to be in the form of a very simple tariff on imports, largely replacing the revenues foregone by not being a member of SACU (say a tariff of about 20 % on all imports). For simplicity, it is not assumed that the trade regime will have a significant effect, in relative terms, on manufacturing activities during the next decade; as stated, there will be enough impetus already from the protection afforded through transport distances and costs.

If Namibia decides to join SACU, it is on the other hand also assumed that the country will be able to enter into trade agreements with some neighbouring countries, and in particular then Zimbabwe. The assumed agreement is similar to the one between Botswana, Zimbabwe and Malawi, which essentially eliminates tariffs between the three signatories.

Trade with South Africa is assumed to be dictated by commercial considerations alone. It is furthermore assumed that Namibia will always have full access to a deep-water port, whether it be Walvis Bay or a new port to the north of Swakopmund (cf. Chapter 14). Transport conditions, including costs, will not be affected by the location of this port. Due to the structure of the data base used, the forecasts will not include goods destined for or originating in the port area. Hence, most fish products and salt production will not be considered in what is being said below. As indicated above, this biases all estimates downwards, in particular for export traffic.

More specific assumptions concerning the *transport sector* include a cost recovery requirement on the part of railway operations. This means that the rail tariffs during the next five years will have to increase (cf. Chapter 8), perhaps with 10%, on average, in real terms in comparison with today's level. The effects until the mid-1990s will be limited, however, as the railway will be protected from competition from new road hauliers and/or services in all its main markets, according to the new regulatory regime introduced in November 1989 (see Chapter 9). During the second half of the 90s, these restrictions will go and the market will then be assumed to be competitive.

Rail tariffs for transports to and from South Africa will also be increased as a consequence of the forthcoming incorporation of SATS on 1 April 1990. SATS have already attempted to increase some tariffs drastically, for example the tariff for coke. Eventually, the elimination of the present cross-subsidisation elements can lead to a significant increase in the lowest tariff (for maize and coal), while there will be a significant decrease in the rates for high-valued goods transported to and from Namibia. The overall tariff level will also be affected by greater efficiency in railway operations, but for Namibia the net effect is assumed to be increases of the order 5 to 10%, in comparison with the tariffs in 1989. Port charges, on the other hand, will not be increased on average, albeit restructured significantly in order to eliminate the current cross-subsidies between different types of commodities and between coastal and overseas traffic.

The assumed increases in rail transport rates will probably be offset by higher road transport rates. It is assumed here that the levy on fuel in respect of road costs, will be increased significantly for heavy road vehicles. New taxation rules for road haulage operators may also push up rates. On the other hand, increased competition in the late 90s will reduce the upward pressure on road transport costs. The net effect of these changes will probably lead to an increase in the transport rates by a mere 5 to 10 %. The increases in rail and road transport are assumed to take place during the first five-year period.

As regards *transport facilities*, it is assumed that Lüderitz will be upgraded to become a commercial port able to effectively serve coastal traffic before the mid-1990s (cf. Chapter 14). Associated upgrading works for the rail and road connections to the port will then also have been completed. The road through Caprivi will be upgraded in two steps. By mid-1990s, the road will have been paved between Rundu and Bagani and between Katima Mulilo and Ngoma; by the end of the decade the stretch through Western Caprivi will also have been completed.

Other projects include the proposed new road through Botswana, linking Buitepos with Sekoma. It will not only provide a direct route between Gaborone and Windhoek, but also between the industrial heartland of South Africa in Transvaal and its main market areas in Namibia, by reducing transport distances for road vehicles between Johannesburg and Windhoek by 450 km. The associated lower transport costs, together with the above-mentioned assumptions about the future rail tariffs, will have a significant impact on the overall cost structure for transports between Namibia and South Africa. In general, the cost of transporting high-valued goods will be significantly reduced, while most low-valued goods will be facing rate increases. It is assumed that the Botswana road will be opened to traffic at the beginning of the second five-year period.

Access to Angola is also likely to be greatly improved during the 10-year period and the infrastructure of southern Angola rehabilitated. Angola will, however, not be identified separately here. When mention is made of traffic through a deep-water port, this would normally refer to traffic through a Namibian port, but it could also refer to traffic through the port of Namibe, destined for or originating in (northern) Namibia.

Finally, it should be mentioned that it has been assumed that no other major investments will be made in the transport sector, for example in new railways to neighbouring countries. For the period subject to review, it is unlikely that any such projects will be viable. The question will be discussed further in Section 11.5.

11.3 Commodity and Commodity Group Forecasts

Imports

Coal is currently used for power generation (by the van Eck plant in Windhoek and a power plant operated by the Tsumeb Corporation Limited (TCL) in Tsumeb), while *coke* is used by TCL in its smelter and refinery in Tsumeb. Total imports are about 160 ktonnes and are by means of railway from South Africa. Increased transport charges, together with the

implementation of several proposed hydropower schemes will make these imports unviable in the future, and they will therefore be phased out entirely during the 10-year period. TCL is thus erecting a new plasma smelting plant, which will use electrical energy and should come on stream in 2 to 3 years. TCL is also considering further plant conversions, which could become operational during the next 5 to 10 years.

The new cement plant, to start operations in the first half of 1990 (see below), will require up to 20% of the cement in coal to fire the kiln. In this case too there is scope for substitution by, for example, hydro-power. It is assumed here that coal for cement will also be phased out by the end of the next decade.

Imports of coal and coke from SADCC-countries are not viable. Imports of coal by sea are a possibility, but of doubtful viability in view of the small quantities involved.

Cement imports stood at 210 ktonnes in 1988 and can be expected to rise rapidly during the next 10 years. A facility is currently being established in Otjiwarongo, but is reported to have limited capacity (about 80 ktonnes), although output capacity could apparently be expanded up to 350 ktonnes p.a. It is assumed here that the domestic demand can be met by a Namibian facility by the end of the 90s, but that SADCC-based facilities will be able to supply part of the demand in the north, and South African plants part of the demand in the south, particularly if Namibia opts for membership in SACU.

There is also a potential for import substitution as regards other types of *construction materials* (bricks, pipes, etc; imports currently amount to 130 ktonnes), but probably not to the same extent as for cement. Part of the demand, in the north-east, can be met with supplies from Zimbabwe.

The *sugar* market is currently about 45 ktonnes. Supplies arrive by sea and are mainly transported by rail within the country. Proposals for establishing a major sugar estate in Caprivi are based on protective measures which are assumed not to materialise. Limited sugar production to be initiated during the next ten years in Caprivi will, however, serve the north-eastern market and prevent Zimbabwean sugar producers from gaining a hold on the market, irrespective of which trade regime is pursued. Hence, most sugar imports will continue to arrive through Namibia's deep-water port in the future.

Maize imports comprise unmilled white maize and yellow maize for stock feed, which all arrive by train from South Africa today. The future will see increased domestic supplies of white maize, but not enough to eliminate imports, which will remain at their current level. As expansion will take place in the north and north-east, there is little scope for Zimbabwe imports. Future imports will instead derive from the world market and, to the extent South African supplies continue to arrive, changed relative prices will in any case make sea transport advantageous. The demand for yellow maize as well as for other *stock feeds* will stagnate and the future is also assumed to bring few changes in terms of routes and modes for the transport of these commodities.

The *wheat* market is currently about 27 ktonnes of flour, the majority of which is supplied by South Africa, partly in the form of flour and partly as unmilled wheat. The demand will grow quickly, and market conditions are likely to change in a way which is similar to maize. Hence most imports will come by sea in the future and not by rail as at present.

In addition, Namibia currently imports substantial quantities of *rice, malt barley and oil seeds* (a total of perhaps about 30 ktonnes). It is believed that much of this could be replaced by domestic production, and proposals have also been made for projects to this end. It is assumed here that only part of the imports will be eliminated during the period up the end of the 90s, and that remaining imports will be bought in the world market and arrive by ship via the deep-water port.

Namibia currently imports substantial quantities of *fresh vegetables and fruits*, perhaps as much as 35 ktonnes p.a. In the future, part of this demand will be met by local supplies, but the balance will continue to arrive by road from South Africa.

Other food products comprise a variety of processed food products, which it will be difficult to produce locally. Imports currently stand at about 130 ktonnes, of which about 50% arrives by rail directly from South Africa. But there should be a market for, in particular, Zimbabwe goods after independence, and if Namibia opts for its own trade regime, part of the supplies will also come from overseas. After 1995 there will be a significant shift towards road transport for goods imported from South Africa.

Manganese ore (almost 20 ktonnes) and refined *lime* (about 15 ktonnes) are currently imported by rail from South Africa. There are local deposits, which are assumed to provide a basis for viable projects during the 90s. Hence, imports are assumed to be phased out before the end of the next decade.

Commodities such as *metals and metal products, non-industrial chemicals, industrial chemicals, wood and furniture* now largely derive from South Africa. The total quantities are close to 200 ktonnes p.a., about half of which arrive by rail directly from South Africa. For many of these commodities, there should be opportunities for, in particular, Zimbabwean suppliers in the future. Overseas supply sources will also play a role, which will become more important if the country does not join SACU. But the relatively low value of these goods, means that overseas suppliers will remain secondary, irrespective of trade regime. Rail transport will become less attractive towards the end of the decade for these goods.

The market for *beverages* (50 ktonnes and mostly by road from South Africa) and *other manufactured products* (about 60 ktonnes and mostly by road from South Africa) will see stronger changes as there is considerable scope for import substitution in certain areas, for example in the bottling of soft drinks. If Namibia does not join SACU, there will also be a noticeable shift towards overseas markets and a larger share of the goods will arrive by way of the deep-water port.

Already today *machinery, equipment and vehicles* are imported to a considerable extent from overseas. The total market is about 50 ktonnes and about 40% arrive at present via Walvis Bay. An increased role for donors after independence will lead to a further shift towards supplies from overseas, but South Africa will continue to remain the main supplier unless Namibia decides to establish its own trade regime.

Finally, *oil* products will be bought on the world market in the future, and will therefore arrive almost exclusively by

Table 11.1 Import Traffic; Relative Share of Different Routes (%)

	Deep-water Port	Railway via Nakop	Direct roads from SA	Road through Botswana	Road through Caprivi	Other*	Total
1988	35	48	15	—	0	2	100
Mid-90s SACU	44	31	14	—	6	5	100
non-SACU	49	29	12		5	5	100
Late-90s SACU	55	12	5	15	7	6	100
non-SACU	61	11	4	12	6	6	100

*Lüderitz, Oranjemund (fuel)
Source: Consultant's estimate

ship. An increasing share of these products could be offloaded in Lüderitz in the 90s.

11.4 Traffic Forecasts

Imports

Total imports amounted to about 1 750 ktonnes in 1988, excluding Walvis Bay, of which 1 300 ktonnes were carried by rail. The rail imports directly from South Africa, i.e. not via Walvis Bay, amounted to almost 850 ktonnes.

Given the above assumptions about the development of the Namibian economy, it seems unlikely that there will be any significant changes in the total amount of imports in weight terms during the remainder of the century. Total traffic can be expected to be of the same order of magnitude as today. This constancy is superficial, however, as the composition of the goods will change significantly. There will be a general trend towards imports with a higher value per weight unit.

This development, of course, reflects the fact that the forecasts are based on the assumptions that the 90s will be primarily characterised by a greater level of self-sufficiency in the agricultural and fisheries sector (maize, fruits, vegetables, rice, oilseeds and perhaps sugar), in the energy sector (hydropower, woodchips and oil will replace coal and coke), in the minerals and ore sub-sector (indigenous sources of lime and manganese will be exploited), and in the construction materials subsector (self-sufficiency in, *inter alia*, cement production). A feature of this substitution process is that it does not result in large new flows of imports as most of the inputs required are available locally, with some exceptions (for example fertilisers). Hence, there should be more room for other types of imports. In summary, the 90s could see a very significant change in the import structure, where the picture of the economy as being very dependent — in weight terms — on 4 to 5 major commodities, will be replaced by a picture of an economy dominated by one import commodity, viz. oil products.

There is also a potential scope for a change in the structure of import flows, as demonstrated by Table 11.1. It is based on the above assumptions and tries to identify the changes in the relative share of various entry points into the country. It brings out the following:

(i) The role of the deep-water port will be strengthened considerably, irrespective of whether the country opts for its own trade regime or not. At present, about one third of import volumes arrive by way of ship; at the end of the 90s it is more likely to be about 55 to 60%. There are two main factors underlying this shift. The first is that the country will be able to purchase such goods as grains and oil on the world market, and the other that to the extent imports of bulk commodities continue to be sourced from South Africa, there will be a shift towards coastal traffic, on account of rising overland transport costs. The effect of not being a member of SACU is primarily to reinforce this trend.

(ii) Rail transport from South Africa will be reduced considerably, not only in relative terms, but also in absolute terms. While imports via Nakop today amount to between 800 and 900 ktonnes, they may be reduced to about 200 ktonnes p.a. at the end of the next decade. Almost every change assumed for the future, works against rail transport to and from South Africa. Whether the country joins SACU or not is of secondary importance, as the railway will continue to carry rather low-valued goods via Nakop in 10 years time, in spite of the fact that most of the bulky goods will have vanished by then. Railway traffic from Walvis Bay is likely to increase considerably in comparison with today.

(iii) Road transports will increase somewhat, mainly on account of new supply sources being opened up in SADCC-countries. Most of these goods will arrive through Caprivi and be destined for the northern parts of the country. But road transport will also be able to hold its ground because of the new road through Botswana. Projected traffic towards the end of the 90s indicates about 35 to 45 heavy goods vehicle, on average, per day arriving or leaving at Buitepos, which tallies with the forecast of the feasibility study for this road (ref. 87).

(iv) It should also be mentioned that the increased role assumed to be played by shipping brightens prospects for the port of Lüderitz, which currently handles less than 0.5 % of imports. Lüderitz could come to play a role primarily for the import of goods in containers, equipment, machinery and vehicles, and oil products destined for the southern parts of the country.

Exports

Also, export volumes are unlikely to change dramatically in the next decade. There may be some increase, provided that there is a continued market for the coarse salt now produced in the salt pans to the north of Swakopmund (at present about 150 ktonnes; the salt from Walvis Bay is not considered here). The future of salt exports to South Africa may be bleak in view of the fact that the Sua Pan project in Botswana is expected to yield 500 to 600 ktonnes of salt p.a. But there may be other markets for the Namibian salt as it is of high quality. In comparison with imports, relative changes in the use of routes and modes are likely to be less dramatic, see Table 11.2. And the impact of the changes are also cushioned by the

Table 11.2 Export Traffic; Relative Share of Different Routes (%)

	Deep-sea Port	Railway via Nakop	Direct roads to SA	Road through Botswana	Road through Caprivi	Other*	Total
1988	64	17	17	10	—	2	100
Mid-90s	56	7	20	—	1	16	100
Late-90s	59	7	5	12	2	15	100

*Lüderitz
Source: Consultant's estimate

fact that exports are much smaller than than imports, or about one third in volume terms.

Very few factors underly the changes in Table 11.2. One important assumption is that the future will see the export of zinc ores through the port of Lüderitz, and not through Walvis Bay or via Nakop as at present. Most of the zinc ores mined in Namibia derive from the Rosh Pinah mine and are trucked to Aus — on the Seeheim to Lüderitz branch line — to be transhipped to rail wagons. Salt exports are furthermore assumed to leave by ship, and the same assumption applies to meat exports to Europe (assumed to be about 10 ktonnes p.a.). Finally, the relative increase in rail transport costs to, in particular, the northern parts of South Africa after the commissioning of the road through Botswana, means a shift towards road transport for all other goods except metals and minerals.

11.5 Transit Traffic

There is hardly any transit traffic worth mentioning today. In the future there could be a market for such traffic to and from, for example, Botswana, Zambia and Zimbabwe. But this is likely to be a longer term development, not to be realised before the end of the century.

The Study on the Trans-Kalahari Railway (ref. 28) thus showed that in order to build a railway to export about 10 million tonnes of coal p.a., the world market price of coal whould need to be at least USD 50 per tonne cif, in 1984 prices. Recently coal prices (cif, Europe) have been about USD 45-50 per tonne, which are very much too low, especially if inflation since 1984 is considered. Consequently, this railway is not viable at present, and there are no concrete plans for its construction either.

The market for transit traffic to and from the SADCC-countries is also affected by ongoing and planned activities to rehabilitate and upgrade the transport infrastructure of these countries, and in particular their railways and ports. Significant sums of money are already being invested in the Dar es Salaam Port Transport System (Dar es Salaam Port, the TANZAM Highway and TAZARA), the Beira Port Transport System (the Beira Port, the Beira to Mutare road and the Beira to Machipanda railway line), the Nacala Port Transport System (the port of Nacala and the railway line from Malawi), the Limpopo railway line from Zimbabwe to Maputo, and the ports of Maputo and Matola. Initial steps have also been taken to mobilise finance and to start up rehabilitation works for the Lobito Port Transport System, i.e. the port itself plus the Benguela Railway.

While transport conditions along many of these arteries and in these ports are far from satisfactory at present, the intention of the ongoing programmes is, essentially, to rectify the situation by the end of the 90s. Available forecasts (ref. 61) indicate that the total practical line capacity of the abovementioned railways is expected to be of the order of 25 million tonnes towards the next decade, while total demand for rail transport will be of the order 10 million tonnes. This forecast is based on the assumption of a timely implementation of all the ongoing and proposed programmes. It is also assumed that the traffic of Zimbabwe, Malawi and Zambia, currently routed through South African ports, will make use of the least-cost route in the future, which normally means a SADCC-port. The forecasts include all the local railway traffic generated by and attracted to the hinterlands of the SADCC-ports.

Given that a substantial surplus capacity may eventually develop in the transport sector of the SADCC-countries, and the fact that transit routes through Namibia to the main centres of activity in, for example, Zimbabwe and Zambia are longer and sometimes much longer than the routes through the SADCC-countries, it seems unlikely that much transit traffic could develop in the 90s. The development of such traffic is also likely to be hampered as long as Walvis Bay remains under South African administration.

11.6 Conclusions and Recommendations

There is a need to remind the reader of the uncertainty characterising the above forecasts. The have been produced in a somewhat unsystematic way, and without access to vital marketing data. On the other hand, many of the trends identified appear plausible, and there is therefore a need to consider them when formulating the first plans for the development of transport network after independece.

One conclusion is that the total level of demand for cross-border transports is not likely to change much, implying that substantial additions of capacity are not warranted, in general. Another conclusion is that there are likely to be important changes in the structure of the flows as concerns modal split and routes. The trade regime chosen will, however, not be the primary factor in determining these changes in the flow; they are likely to materialise in any case, and will only be reinforced by a decision not to become a member af SACU.

A third conclusion is that rail traffic via Nakop to and from South Africa is likely to diminish substantially, from the current level of almost 1 million tonnes per year to perhaps 25% thereof at the end of the next decade. The route to the deep-

water port will instead take over as the main artery of the Namibia railway system rising from the current 600 ktonnes to close to 1 million tonnes towards the end of next decade. It can also be readily envisaged that most of the domestic growth in rail transport will benefit the railway system in the northern parts of the country, while the railway system in the south will see its role significantly reduced.

More specifically, there will be a tendency towards shorter transport distances by rail, indicating that the demand for *tractive power* may in fact decrease over the next ten years. In view of the facts that TNL has a fleet of old locomotives and that there is surplus capacity at present, there is a need for a careful evaluation of alternative strategies for the development of the motive power fleet.

The conclusions in respect of *railway wagons* are different, for two reasons. The first is that most of the wagons used in the international traffic at present are South African; the other is that the composition of traffic to be carried will change substantially, with much more containerised goods and less bulk commodities. The demand for Namibian-based wagons may therefore increase, including the demand for more special wagons.

Finally, the trends identified underscore what has been said in Chapter 8, about the financial situation of TNL, and its consequences. These imply that there is a need for carefully evaluating the proper structure of the railway network, and — more specifically — to review the need for a reduction in its size. In fact, it can not be ruled out that the most appropriate railway network for Namibia for the next century would only link Windhoek and the north with the country's deep-water port.

A fourth conclusion is that improved roads to neighbouring countries are likely to attract considerable heavy goods traffic. They will mainly be used to import goods to the country, and in the case of the proposed road through Botswana, most of the traffic will be diverted goods traffic, which currently uses the road and rail routes via Nakop. Reduced transport costs can, in general, be expected to be beneficial to the Namibian economy.

Finally, the analysis underscores the importance of a deep-water port. While noone probably would question this statement, the role of the port is likely to become of an even greater importance to the Namibian economy in the future. And this development will materialise even if no specific strategies are devised to reduce independent Namibia's dependence on the South African economy.

12. ORGANISATIONAL DEVELOPMENT

12.1 Introduction

The review in Chapters 6 to 8 of the institutions involved in the transport and communications sectors has shown that these in most respects are independent and self-sustained organisations, performing most duties expected of either a government department or an operator in the two sectors. The organisations appear to largely operate independently of South Africa not only in theory but also in practice, although at the more informal level contacts with South Africa and its institutions are numerous for obvious reasons.

Thus, for the operations of the railway, the port of Lüderitz and the putative national carrier, Namib Air, there is today a more or less fully-fledged organisation, TransNamib Limited (TNL). In an African perspective, TNL must be viewed as a mature organisation, particularly in view of its young age. There are no apparent shortcomings in the structure and the nature of TNL activities, and available data seem to suggest that performance of the railway today is in fact better than when SATS was responsible for operations. The company is in addition continuously undergoing development and change. Some of this work is being done with the help of consultants and SATS. The needs of TNL for the post-independence period are instead to be found in other spheres, as discussed in the next two chapters. There is also a need to review the regulatory framework of TNL, but this is a question to be addressed in a somewhat longer perspective, which will also have to be preceded by the formulation of a transport and communications policy by the new government. (cf. Chapters 3 and 8).

Also, the Department of Posts and Telecommunications (DOPAT) is in almost every respect a self-sustained post office. The only obvious shortcoming in terms of functions to be performed relates to international affairs. However, DOPAT is implicitly party to agreements with international organizations and other countries, and much of this framework can be taken over after independence with proper modifications, without any major efforts. Agreements, for example, concerning the distribution of revenues in international telecoms traffic, thus follow established practices and DOPAT receives its 'normal' share. Apparently, DOPAT staff have also been involved to some extent in the work of establishing the present framework for international co-operation.

As discussed in Chapter 7, DOPAT's main shortcoming is its mode of operation. It is argued here (Section 12.4) that it would be beneficial to independent Namibia, if DOPAT were incorporated to become a government-owned company and to be operated in the same way as postal and telecoms services in, for example, most other SADCC-member countries. This will also entail seperating out some of the regulatory functions, to be performed by a government department.

The major needs as regards organisational developments are primarily to be found in the Department of Transport (DOT). DOT has currently no responsibilities and competence in the field of maritime affairs, and its competence and responsibilites in the field of civil aviation are limited. It is probable that this situation reflects, at least partly, the fact that these two sub-sectors are largely governed by international conventions, to which Namibia is not a signatory. After independence it will be imperative to establish competence in the two sub-sectors in view of the need for Namibia to become party to at least some of the major conventions and to play the role normally assumed for an independent country. In addition, there will be a need for strengthening the co-ordinating role in the transport sector, to ensure that there is some unit in the government administration which has an overview over the development of the sector. As pointed out in Chapter 6, this function is lacking today. There is also a need for strenghtening the position of manpower training and development in the DOT. Proposals for how to accomplish this are developed in the following two sections.

As concerns the DOT there may also be a need for considering its financial position and, in particular, to consider if there are alternative ways of making available adequate funds for road maintenance in the future. This issue touches on major policy questions regarding taxation and the financing of public activites of a general nature, which need to be addressed by the government of independent Namibia. For these reasons, no specific recommendations are made here, but a proposal is included for a study, which aims at providing the government with a basis for formulating a strategy for road taxation and financing.

12.2 Strategies

To strengthen the government administration in the transport sector the following considerations have been taken into account.

Present Structures

At independence, a new government structure will be introduced consisting of 16 ministries. The Ministry of Works, Transport and Communications (MOWTC) will, *inter alia*, be responsible for transport and communications.

It is assumed here that the present department structure of the Windhoek administration of relevance to transport and communications will not change and that most of its main features will be retained during the foreseeable future.

There are several reasons for making these assumptions, apart from the most obvious one, i.e. that there are no concrete proposals for an alternative. The existing structure thus appears to function reasonably well. Major modifications could disrupt the execution of those functions which are now being performed in a satisfactory manner, and could also give rise to uncertainty which may have a detrimental effects on staff motivation and impair an already difficult manpower situation. Besides, the present stucture of the DOT can in principle be modified to accommodate for the additional needs which have been identified without instituting major changes. It can also be envisaged that after a while the new government may want to set up its own commission for a more complete review of the government service, as has been the case in many other countries after they have obtained their independence.

A Step-by-step Approach

The competence which is now lacking in the transport sector is highly specialised, and can only be acquired through ex-

tensive experience. Good formal training is not enough. At the same time, the actual scope of activities to be performed by a government in, for example, civil aviation is not definite, and there is also more than one alternative for how to actually perform a certain function. The approach recommended here is to identify a limited set of the most vital things to be mastered to begin with, and to leave other things to be done by others (by other countries, organisations and/or private companies) at least for the immediate future. The idea is thus to develop a small core of Namibians who are rather quickly brought up to a level where they could ensure that the country is self-sufficient in some very important fields. This small core would then be expected to serve as the corner stones for further development and refinement. The step-by-step approach also means that people, competence and experience are put at a premium rather than organisational structures, job descriptions and self-sufficiency in every respect.

The First Step

The first step would involve the following:

- the enactment of comprehensive Namibian laws. As discussed in Chapter 3, the Windhoek administration is currently processing draft legislation for civil aviation and maritime affairs to enable the first government of Namibia to make them effective after independence. It seems likely that the proposed laws will be able to serve the needs of independent Namibia, at least as an interim measure. No further new laws are immediately required for the development of the transport and communications sectors;
- an identification of the vital functions to be taken on in the first step and the way they should be performed. Responsibility should only be assumed for those functions which, according to the most relevant international conventions, rests with the government. Competence and/or capacity should on the other hand not be established in fields where services can be obtained/procured from other sources, provided that there are alternative supply sources so that the supplier of the service cannot act as a monopolist. This rule does not apply to services already provided in Namibia, for example air traffic control;
- the establishment of new units at the relevant level within the DOT to be responsible for the new functions. Functions already performed should remain with their present units;
- the recruitment of heads of the units to be given responsibility for establishing the new units, to make them functional within a given time period, say 1 year after commencement of service, to identify in detail staff requirements during the first step, and to define the units' future development. The recruitment of the heads should be done on a priority basis, as they should as far as possible be involved in the recruitment of other staff members required; and
- the recruitment of all other staff required to perform the basic functions identified according to the above strategy.

The Role of Foreign Experts

As mentioned, some of the skills now lacking in the transport sector can only be acquired through long experience. There is therefore no alternative but to rely on some experts from abroad for some time. Foreign experts should, however, preferably only be recruited if the competence is not available in the country. If the skills are available but cannot be attracted for other reasons, for example salaries and benefits, it would be inappropriate to look for assistance from abroad.

Expatriates should be recruited to fill line positions and not to act as advisers. Generally it is easier to recruit qualified foreigners if they can assume responsibility. The role of expatriates should, on the other hand, also be to make themselves redundant. They should therefore not only ensure that essential functions are performed in a satisfactory manner, but also that they train their counterparts to enable them to take over after a given time period. To ensure a smooth transition, foreign experts should be retained in a coaching position for some time after they have stepped down from their line positions.

The Role of Donors

Technical assistance from a donor may be an appropriate vehicle for providing the initial shove to establishing the new units. There are several reasons for this. One is remuneration, where the current fiscal situation and salary policies may restrict the direct recruitment of foreign experts. Another is that some donors nowadays have considerable experience in the provision of the kind of technical assistance that can be envisaged, including the recruitment of suitable staff. A third reason is that donor financing could be used to ensure that there is an appropriate back-up in the home countries of the experts. And a fourth reason is that the technical assistance can be extended to provide consultancy support to solve short-term problems as part of the creation of the new units and to finance training programmes abroad. It is, however, important that the department(s) concerned be fully involved in every respect pertaining to the implementation of a donor-financed project.

12.3 The Department of Transport

Civil Aviation

The first step in the strengthening of the civil aviation function within the the DOT is proposed to comprise the following (proposals for the subsequent steps will have to be developed at a later point in time by the concerned staff):

- the enactment of comprehensive Namibian civil aviation laws (see above);
- the establishment of a separate unit — a directorate — with a director reporting to the Secretary for Transport. The unit will have three divisions for Air Navigation Services, Aviation Safety and Air Transport. In addition, it is envisaged that Meteorological Services will belong to this new directorate;
- the retention of the units involved in aviation matters and attached to the Directorates Roads and Mechanical as well as the present organisation at the local level (at airports, etc.) and with their current functions (see Chapter 6). It is also assumed that general administrative services (personnel, finance, accounts, etc.) are provided by other units within the DOT;
- the target that the new directorate will possess the *basic* competence and facilities required to perform functions (i) to (vii), as decribed in Chapter 6, pp. 6:3-6:4 (see also Appendix 2), within one year after independence;
- the recruitment of three civil aviation experts with technical assistance from a donor to serve initially as

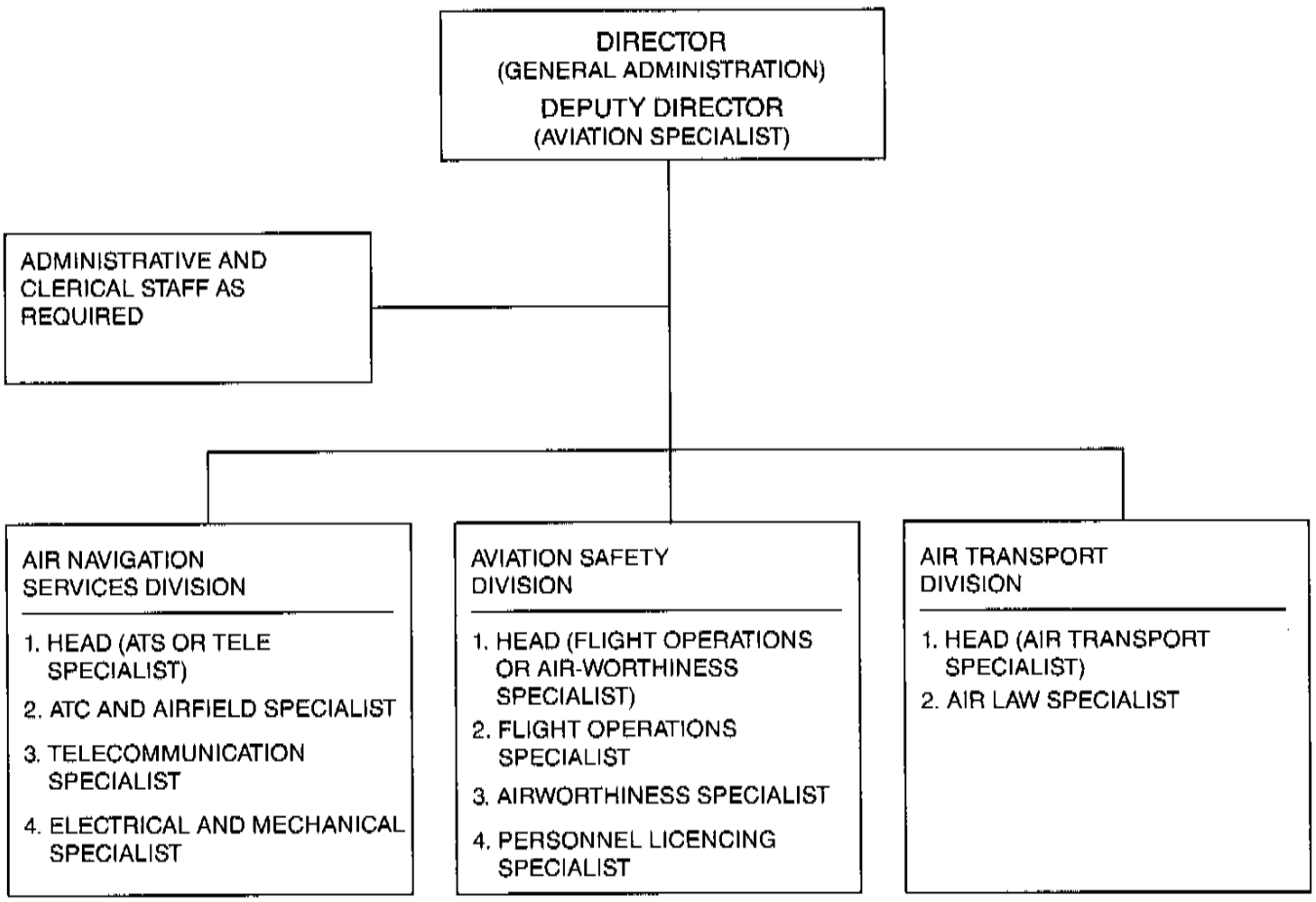


Figure 12.1 Outline of Structure and Manning of a Civil Aviation Directorate

director of civil aviation, Head of the Aviation Safety Division and Head of the Air Transport Division. It is envisaged that it will be possible to recruit Namibians as the deputy director and chief of Air Navigation Services Division;

- the recruitment of staff to fill all vacancies in the present establishment for the aviation related units in DOT; and
- the development of on-the-job training and formal training programmes to ensure that recruited staff and staff designated to take over as director and chiefs acquire the basic — required — competence within a specified time period (see also Chapter 13).

The proposed structure of the new directorate for civil aviation is shown in Figure 12.1. The *Director and Deputy Director* would primarily be concerned with:

- the formulation of aviation policy including policies for the directorates future development;
- the ground segment of civil aviation;
- the development of an airfield and air navigation plan (cf. Chapter 5), together with the Air Navigation Services Division;
- manpower planning, training and development;
- budgeting; and
- liaison with the industry and other government departments.

The *Air Navigation Services Division* would be responsible for:

- detailed planning of airfields and air navigation systems;
- the formulation of criteria and requirements for airfield and air navigation system installations and services;
- the management of the operational services at airfields and air traffic units.

The *Aviation Safety Division* would be concerned with:

- establishing flight safety standards;
- establishing a Namibian registry for civil aircraft and a licencing system for personnel, etc.;
- licencing and inspection of airfields, aircraft, flight operations, personnel and facilities; and
- accident and incident investigations.

Finally, the *Air Transport Division* would handle the:

- overall planning of the civil aviation sector (studies, forecasts, need for air transport capacity)
- international co-operation;
- commercial regulation of air transport; and
- legislation for civil aviation.

All divisions would also be involved in manpower training and development, but this work is proposed to fall under the overall responsibility of another unit in the DOT (see below).

It is proposed that a technical assistance team comprising three experts be recruited with financial assistance from a

donor. It is also proposed that some funds be made available to this team by the donor to make it possible to recruit consultants for short assignments as required and to organise training abroad. The team would have three members, as follows.

(i) A Director of Civil Aviation. It is proposed that the person chosen for this post should have a background as an executive in a civil aviation administration, and specifically in aviation policy and strategic planning of the ground segment of civil aviation, and with experience in airfield and air navigation plans. He would be recruited on a priority basis as he would be involved in the recruitment of the other two experts, and as far as possible in the recruitment of the other civil aviation staff. He would be charged with making the new directorate functional according to the above targets and to train the director designate, envisaged to hold the position as deputy director, so that he can take over in 3 to 4 years time.

(ii) The Chief of the Aviation Safety Division. This person would have previously held a senior position in a corresponding unit of a civil aviation administration in some other country. He would train the person designated as the future chief, to be able to take over after a period of about 3 years.

(iii) The Chief of the Air Transport Division. This person would have previously held a senior position in a corresponding unit of a civil aviation administration or ministry in some other country. He would have extensive experience in the economic regulation of air services through air service agreements and licences, as well as experience in air law and the international conventions underlying air laws. He would also have experience in the planning of the aviation sector and the formulation of aviation policies. He would train the person designated as the future chief, to be able to take over after a period of about 3 years.

All three experts are assumed to be available in an advisory capacity, on a part time basis, for some time (up to 2 years) after they have stepped back from their line positions. The project description for the proposed project is included in Annex 1 (Project D-GM-4: Civil Aviation Experts).

Maritime Affairs

The first step in the establishment of competence and capacity in the sphere of maritime affairs is proposed to comprise the following elements (proposals for the subsequent development will have to be developed later by the staff concerned):

- the enactment of comprehensive Namibian maritime affairs laws (see above);
- the establishment of a separate unit — a directorate in the Department of Transport — with a director reporting to the Secretary for Transport. The unit will have two divisions for (i) Maritime Safety and Pollution Prevention, and (ii) International Relations and Maritime Law;
- it is assumed that TNL will continue to be responsible for navigational aids, DOPAT will continue to be responsible for maritime telecommunications and the Directorate for Sea Fisheries will continue to be responsible for fishery protection services. It is also assumed that general administrative services (personnel, finance, accounts, etc.) will be provided by other units within the DOT;
- the target that the new directorate will possess the *basic* competence and facilities required to perform the functions listed below, within one year after independence:
  - * sea worthiness certification and registration of vessels
  - * personnel licencing and registration
  - * pollution prevention and control
  - * search and rescue services
  - * accident investigation
  - * international liaison and co-operation
  - * maritime law administration.

It is assumed that the directorate will be able to hire services whenever they are available from the private sector, e.g. from classification societies;

- the recruitment of two maritime affairs experts with technical assistance from a donor to initially serve as Director of Maritime Affairs and Head of the International Relations and Maritime Law Division. It is assumed that it will be possible to recruit a Namibian to serve as the Head of the Maritime Safety and Pollution Prevention Division;
- the recruitment of staff to fill about 5 to 7 other professional posts proposed to be part of the initial establishment of the Directorate of Maritime Affairs in DOT; and
- the development of on-the-job training and formal training programmes to ensure that the staff recruited and staff designated to take over as director and heads of division acquire the basic competence required within a specified time period.

Figure 12.2 gives an outline of the proposed structure and manning of the Maritime Affairs Directorate, and also identifies the main functions to be performed by the new units.

To make the new directorate functional, it is proposed that a donor should finance a technical assistance team comprising two experts. In addition, it is proposed that funds be made available to these experts by the donor to make it possible to recruit consultants for short assignments as required and to organise training abroad. The background and tasks of the two experts are proposed to be:

(i) A Director of Maritime Affairs. He should have a background as an executive in a maritime affairs administration, and specifically in maritime safety aspects. He should preferably be a master mariner. He should be recruited on a priority basis as he would be involved in the recruitment of the other expert, and as far as possible in the recruitment of the other maritime affairs staff. He would be charged with making the new directorate functional according to the above targets, and to train the director designate, envisaged to hold the position of deputy director as well as Head of the Maritime Safety and Pollution Prevention Division, so that he can take over in 3 to 5 years time. In addition, he would be responsible for the manpower development of the directorate, policy formulation (including the definition of the future evolution of the directorate), budgets and co-ordination with other directorates and departments. He would also be responsible for providing advice to the Maritime Safety and Pollution Prevention

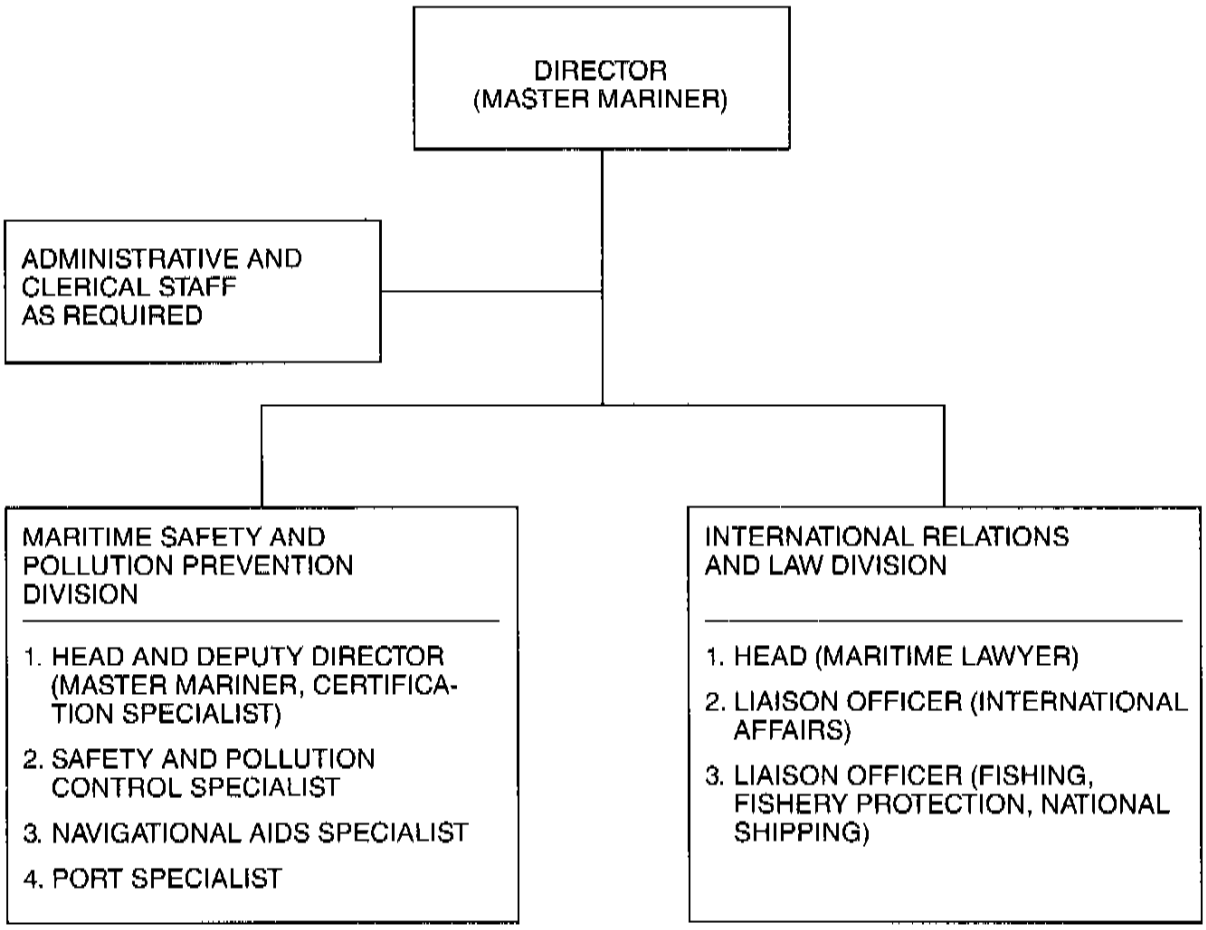


Figure 12.2 Outline of Structure and Manning of a Maritime Affairs Directorate

Division and be involved in the establishment of a registry for Namibian ships and personnel, and the development of systems and procedures for certification of ships and personnel, and accident investigation.

(ii) The Head of the International Relations and Maritime Law Division. This person should have previously held senior position in a corresponding unit of a maritime affairs administration or ministry of some other country. He should have extensive experience of maritime laws and the international conventions underlying maritime affairs legislation. He should preferably also have experience in the planning of the maritime sector and the formulation of maritime policies. He would train the person designated as the future chief, to be able to take over after a period of about 3 years.

Both experts are assumed to be available in an advisory capacity, on a part time basis, for some time (up to 2 years) after they have stepped back from their line positions. The project description for the project is in Annex 1 (Project D-GM-5: Maritime Affairs Experts).

Policy and Planning

It can be envisaged that after independence, the DOT will come to play a central role in the development of the transport sector. This will, *inter alia*, involve the formulation of transport policies and the development of investment plans. There is also a need for identifying a unit in the government structure to monitor and process matters of relevance to TNL. Although TNL has a very independent status and reports directly to the Cabinet, some aspects of its operations are subject to government control (see Chapter 8), which need to be properly processed; the most natural place for this would be the DOT. In addition, the DOT will have to shoulder the responsibility of maintaining liaison with donor agencies regarding assistance to the sector, and to ensure that such assistance is in agreement with established policies and plans. In a somewhat longer perspective, it is possible that the scope of activities of the DOT will have to be extended to cover the regulatory, policy and monitoring functions in repect of communications, provided the present Department of Posts and Telecommunications is transformed into a government-owned corporation (see below).

In view of this, and the fact that there is no capacity for sector planning and policy analysis and formulation at present, it will be necessary to establish a new unit within the DOT to be concerned with these matters. It is proposed that this be done essentially in the same way as that proposed for civil aviation and maritime affairs.

The actual positioning of the new unit within the DOT will have to be reviewed carefully. At first sight an appropriate solution would appear to be to establish a new Planning Directorate, to be concerned with all planning aspects and include the unit there. The unit would initially be staffed by about 3 to 4 officers concerned with (i) policies, including liaison with other departments, institutions and donors, (ii) investment planning and medium to long-term budgeting, (iii) management information systems and (iv) statistics. The policy and planning unit could possibly also co-ordinate the annual budget work.

It is proposed that the unit be established by recruiting an expert with technical assistance from a donor. He would have a background as a transport economist and is envisaged to be the chief of the unit. As above, it is recommended that the donor should make funds available to make it possible to recruit consultants for shorter assignments.

The transport economist should preferably hold a senior position in a policy and/or planning unit of a ministry or a government administration of another country and/or shall have experience in dealing with donor agencies. He is envisaged to be responsible for establishing the new unit, formulating systems and procedures, and for recruiting and training staff. It is envisaged that one person would be designated as the future chief of the unit to be trained to take over after about 3 years. The expert is assumed to be able to serve in an advisory capacity, on a part time basis, for some time (up to 2 years) after he has stepped back from his line position. The technical assistance is part of project D-GM-6: Technical Assistance to the Department of Transport; see Annex 1.

Personnel

Personnel administration and human resources do not feature prominently in the departments of the Windhoek administration. The main reason for this is that personnel matters essentially fall under another department, the Central Personnel Institution (CPI), but the work is actually divided between the CPI and the department concerned. The DOT, for example, is responsible for the recruitment of staff for all junior posts, while the CPI is responsible for the senior ranks. The final decision, however, always rests with the head of the department. As regards training, the CPI is responsible for formal in-service training and training of common interest to several departments at all levels, whereas a department normally handles functional training.

Currently, personnel administration within the DOT is the responsibility of the Personnel Sub-division in the Directorate Transport Regulation and Auxiliary Services. Functional training falls under various divisions, as described in Chapter 6.

After independence, it will probably be necessary to strengthen the human resources component within the DOT, and in particular that part concerned with manpower training and development. There are several reasons, which will be discussed further in the next chapter. It is therefore recommended that a new personnel unit be established to take over the tasks of the present Personnel Sub-division, but also to be responsible for the formulation of training programmes and manpower development within the DOT. It is envisaged that present training programmes would remain with the units currently responsible, while the new Personnel unit, proposed to become a division within the present Directorate Transport Regulation and Auxiliary Services, would first and foremost be involved in identify new needs and in helping to identify new possibilities for training, when it has to be carried out abroad.

To set up the new manpower training and development function, it is proposed that a manpower training expert be recruited with technical assistance from a donor. It is envisaged that the expert will serve as the chief of the new unit, but depending on the circumstances he may also be the chief of a sub-division only concerned with training and development issues. The manpower expert should preferably have experience in handling manpower development issues of a complex nature, preferably in a specialised field such as civil aviation or maritime affairs and from a developing country in Africa; see further the next chapter. The technical assistance is part of Project D-GM-6: Technical Assistance to the Department of Transport; see Annex 1.

Road Taxation and Road Financing

As described in Chapter 6, the DOT is currently responsible for the road network of the country, which is built and maintained to very high standards. The funds required for construction and maintenance are appropriated from the CRF; there are no earmarked taxes. The same applies to government-owned airports and aerodromes. Funds for maintenance activities have declined during the past 5 years in real terms. At present, DOT receives about R 90-95 million per year for maintenance purposes. DOT's own assessment is that R 105 million will be required to maintain the existing road system at its present level. Included in this is programmed expenditure to rehabilitate certain major roads, which were built 20-30 years ago.

So far, the low appropriations do not appear to have had any obvious detrimental effect on the condition of the road network. The effects of reduced resources have mainly materialised in a rapidly ageing fleet of equipment for maintenance purposes.

After independence, it will be necessary to review road taxation in the country, on account of the fact that part of it is governed by South African legislation. The review should also study the structure and level of taxes, including the level of road user charges. At least for some classes of heavy goods vehicles, there may be a need to increase that part of the total level of taxes which reflect road user costs (cf. Chapter 6).

While undertaking the study on road taxation, it is also proposed that the question of earmarking the taxes in respect of road user costs for road construction and/or maintenance purposes be assessed. Earmarked taxes are no panacea to ensure an optimal allocation of funds to and use of money in the road sector. Experience from, in particular Africa, but also from many other countries shows, on the other hand, that tight public finances often tend to have stronger effects on appropriations for roads than for other sectors. The short-term effects thereof are difficult to monitor, while the long-term effects are clearly very costly to the national economy.

There is every reason to believe that Namibia will for several years to come see a very tight financial situation (cf. Appendix 2). Against this background, it is proposed that the study on Road Taxation (Project D-GM-1; Annex 1) should also review on a worldwide basis the experience of operating a road fund by means of earmarked taxes, including the mode of operating such a fund if it is found that earmarked taxation would be beneficial. The study has high priority. It should be executed in close co-operation with other concerned government ministries and departments to ensure that its recommendations reflect the government's basic policies in respect of the financing of public expenditures.

12.4 The Department of Posts and Telecommunications

Incorporation

It was argued in Chapter 7 that many of the problems faced by DOPAT today are caused or at least magnified by an inap-

propriate operational framework, viz. that of a government department. It was therefore recommended that DOPAT be converted into a government-owned corporation.

An incorporation of the post office would be expected to have the following beneficial effects: It would

- lead to a separation of operations and investments from policy development — to be transferred to another department — thereby establishing a clearer mandate and role for DOPAT;
- make it easier to measure performance at various levels of the organisation;
- allow for more flexible remuneration schemes, including performance-related ones;
- enable the stengthening of the human resources development function within the organisation;
- facilitate access to investment funds; and
- enable the introduction of a higher degree of cost-based tariffs, which will improve use of the telecoms and postal networks from both an economic and financial point of view.

The Privatisation Advisory Committee (see Chapter 4) has already been considering the issue of incorporation — it was one of its top priorities for review — but apparently rejected the idea of making DOPAT a public corporation, on account of what was considered to be an inadequate financial performance. It is the Consultant's opinion that the current financial performance is immaterial to the question of whether a government corporation should operate posts and telecommunications or not; it is only relevant in case a (partial) privatisation is envisaged, which apparently has not been the issue at stake, nor seems to be relevant to the immediate post-independence period.

It has been a general trend worldwide, including many African countries, to operate postal and telecoms services in the format of a government-owned corporation, rather than as a government department. Many countries have also decided to establish separate corporations for postal and telecoms services. While the impending independence would afford an opportune moment for paving the way for a reform of DOPAT, there does not appear to be a need at this point in time to extend it to cover a separation. The incorporation of DOPAT into one company will initiate a process which in itself will lead to a clearer distinction between the two types of services being provided, in terms of accounting, staffing and organisation. It will therefore be a fairly easy exercise later on to establish two separate corporations, if it is concluded that this would be preferable.

Technical assistance will be required to pave the way for the incorporation, to allow DOPAT's staff to carry on with their normal duties. DOPAT already lacks a number of experts, but also lacks the kind of expertise required.

The work of the technical assistance team would, *inter alia*, be to:

- propose and develop appropriate organisational structures, including the design of a regional structure for operations, allowing for decentralised management;
- formulate new salary, manpower and manpower development policies, including job descriptions;
- develop new management information systems;
- identify soft — and hardware requirements;
- develop and carry out preliminary training programmes;
- review procedures for setting tariffs;
- make financial and economic evaluations; and
- draft necessary legislation and associated regulations.

If a decision is made to carry on with the proposed incorporation, the scope of work should be extended to also provide assistance with the implementation of the programme, to be extended to cover a period of up to about 12 months after the day of incorporation. The extended phase would also include training. In addition, a follow-up phase should be envisaged to allow for corrective measures to be made later on. This phase is anticipated to last between 6 and 10 months. The proposed technical assistance is part of Project T-GM-1: Preparation of Master Plan for the Telecoms Network and for Incorporation of Posts and Telecommunications; see Annex 4.

Master Plan

The current absence of medium to long-term plans for the telecoms network is one indication of the problems associated with the current mode of operation of the post office. It tends to lead to a focus on current problems, rather than on the strategic and longer-term aspects. For the development of the telecoms network this can have detrimental effects. One reason is the need to ensure that there is a comprehensive philosophy underlying the development of the network. Another is the heavy investment requirements; in fact, the telecoms is typically one of the largest investors in capital projects in both developing and developed countries. In addition, the lead time between planning and commissioning is normally very long. The costs of making incorrect investments are therefore considerable.

In view of the close relationship between the large investments required to be made in the telecoms network and the financial performance of a post and telecoms corporation, there is a need to look at these two aspects simultaneously. For this reason, the proposed technical assistance project (Project T-GM-1; Annex 4) will encompass both the preparation of the master plan — covering a 10-year period — and the plans for incorporation, although it is envisaged that these two components will be executed by two different teams working partly in tandem.

The master planning exercise should be prepared in such a way that it could be subsequently updated regularly by the post office staff. The master plan, which would be based on clear objectives and embody government policies, would contain the following components:

- fundamental plans for switching, numbering, synchronisation, routing and signalling, and transmission;
- traffic and numbering forecasts;
- development of the rural network;
- investment plans, 10 years and 3 years;
- economic and financial viablility; and
- manpower and training requirements.

Regulatory Functions after Incorporation

A few of DOPAT's present activities would not be taken over by the proposed new corporation, as they relate to the formulation and implementation of government policy in respect of the sector. More specifically, there will be a need for a separate unit to be concerned with such functions as the administration of the post office laws, the review and processing of proposed revisions of tariffs for postal and telecoms services, the formulation of policies in respect of, for example, the segments of the telecoms market in which the incorporated post office should not enjoy a monopoly position, a review of the need for donor assistance and the monitoring of the overall development of the sector. A number of other regulatory functions should, however, remain with the post office, for example the licencing of radios. The reason is that these functions require technical expertise which for this only the post office can provide.

Given the time required to plan and execute an incorporation, there will be quite some time available to review how those regulatory functions, which need to be dealt with outside the post office, should be handled. One possible evolution would be to transfer the remaining functions to the DOT and convert it into a department of transport and communications. The organisational development for DOT proposed here could, in principle, be easily modified to accommodate for this. In terms of manpower, the changes are very small.

13. MANPOWER REQUIREMENTS AND DEVELOPMENT

13.1 Introduction

A common and recurrent problem to the transport and communications sectors, identified by managers and heads of departments, is the shortage of certain skills. Particularly pronounced are the shortages of staff with technical skills — engineers, technicians and mechanics. But other specialised competence is also lacking, particularly skills of relevance to aviation, both for operational and regulatory functions. Official data regarding the number of vacancies have been presented in Chapters 6 to 8, which also seem to indicate that the DOT and DOPAT are more badly afflicted than TNL. The data presented in the Manpower Survey, 1988, carried out by the Department of Economic Affairs (ref. 9), also lend support to the claim that there are serious shortages and that these are primarily to be found in areas requiring specialised skills.

However, these data should be treated with some caution. While it is doubtless so that there are many genuine needs to be met in the institutions concerned which give rise to considerable concern for the future, official data can also be somewhat misleading. Present shortages may thus also reflect rigidities in the present structures, and an inability to make the best use of the resources available in the country. The employment policies of the Windhoek administration, at least superficially, give an impression of not being very responsive to market requirements, as is also evidenced by the fact that formal qualifications play a very important role when defining career paths for individual officers. To take one example: a successful telecoms technician, will require additional formal training at recognised educational institutions to become a technologist. To reach this level, it may be necessary for him to receive additional training of up to 3 years, without interruption. Present regulations laid down by the Government Service Commission stipulate that the candidate will only receive half his salary during this time.

Thus, when looking at the present situation, it is necessary not only to view present shortages as reflecting inadequate training, improper training and lack of training capacity. These problems are no doubt one important explanation as will be emphasised below, but it is also necessary to consider the *efficiency of the labour market (i.e. how the available manpower resources are in fact utilized), particularly in the context of the public sector*, as well as ways and means for improving its performance.

The training and function of the labour market are issues of strategic importance to the transport and communications sectors, as well as to independent Namibia, in general. A number of more specific issues serve to emphasis this. Firstly, the current manpower shortages will be accentuated by the need to take on new functions in certain sub-sectors, as described in the preceding chapter. There is hardly any competence available for many of these functions today. Secondly, there is a risk that the independence process will lead to a higher turnover of staff; some have even suggested that there will be a mass exodus of white civil servants and experts during the first two years after independence. Thirdly, a great number of Namibians have been trained abroad — estimates of 8 000 to 10 000 have been provided — and many have skills of relevance to the transport and communications sectors. There will no doubt be jobs available for many of these returnees, but attention has to be paid to their integration into their new places of work.

The following three sections address some of the implications of these issues, as well as identify strategies in respect of them. Section 13.5 then finally looks at the implications for training and provides recommendations for technical assistance to strengthen training functions of relevance to the two sectors.

13.2 Present Shortages

Three Reasons

The present manpower shortages, particularly in the DOT and DOPAT are believed to be a reflection of three factors. Firstly, the actual needs are probably somewhat overstated in some areas. The engineering establishment of the DOT has only been modified slightly during the past ten years, although there has been a significant reduction in road construction activities; road construction is not likely to rise significantly in the future either. Secondly, there is a genuine shortage of some specialised skills in the country. One example used to be air traffic controllers. And although DOT has recently been quite successful in retaining and recruiting air traffic controllers, the situation can change again very quickly. The needs will probably thus be accentuated by independence on account of increased international aviation and have also been affected by the departure of staff of the South African Air Force (cf. Chapters 5 and 6). Besides, there is a general shortage of air traffic controllers in the world, and also South Africa is badly short thereof.

But there are also other shortages which suggest that the actual ouput of students with certain skills is inadequate. To some extent this is beyond the control of the institutions concerned and reflects the fact that it is not possible, for example, to be trained as an engineer in Namibia. But there are other explanations as well, where the remedies are more immediate. As explained in earlier chapters, the institutions concerned run their own functional training programmes. However, the intake of students to these programmes seem to be limited for two interrelated reasons, viz. the stringency of entry requirements and inadequate schooling. The school system in Namibia, besides being grossly inequitable in its allocation of resources between whites and non-whites, has a bias towards academic training and humanities. The number of students in secondary education is low, and the enrollment of students in sciences, mathematics, and technical subjects or the number of pupils in special vocational and technical schools at the secondary level, is even lower and very low by any standards. The problem is aggravated by a shortage of teachers in these subjects. Another problem of the educational system is the emphasis on a formal examination system, which tends to promote students with a theoretical aptitude, and to eliminate students with a vocational orientation. The number of students graduating from the general school system with a relevant background for further training in many skills required by the two sectors is therefore very limited (cf. ref. 88).

At the same time, the functional training schools, for example DOPAT's school for the training of telecoms electricians

and technicians, have done very little to overcome this problem, for reasons which are not fully understood. These institutions have thus not instituted any specific bridging courses, where aptitude tests are used as a selection criterion for identifying trainees, rather than schooling and examination results. Nor do any major efforts seem to have been made to overcome the language problems of the country, and to institute special programmes to improve proficiency in the official languages of the government service (i. e. until independence English and Afrikaans). This is in contrast to private industry, where several ambitious examples can be found of vocational training programmes which 'reach out'. And also TNL has started to meet these challenges, by instituting special literacy programmes and by introducing new techniques breaking with the conventional rules of the apprenticeship programmes. Actions need to be taken in both the short and long-term perspective; see further below.

The third reason for the current shortages is inadequate salaries and benefits in the public sector. The Namibian economy is an integral part of the South African economy. More precisely, it is a common market and will remain so for at least the near future; this also applies to the labour market. In view of the marginal size of the Namibian economy in relation to the South African one, wages and salaries in Namibia — of in particular skilled people — are determined by conditions in South Africa. For the public sector this has drastic consequences, because, as a whole, the South African economy is muchmore productive than the Namibian, as evidenced by the fact that the South African GDP per caput is about 3 times higher. South Africa can therefore support much higher salaries than Namibia, seen in isolation.

This must be considered together with the fact that South Africa and the Windhoek administration have chosen to develop the public sector in Namibia on a very large scale. The total civil service in Namibia, including the second tier authorities, amounts to about 45,000 posts, of which 20,000 are to be found in the departments of the central government. The total wage bill amounts to about 20 % of the Namibian GDP. In relation to the size of the economy, these dimensions are exceptional by any standards in the world.

Reform of the Public Sector

The public sector thus faces two major problems. It has a very large civil service, and its employees expect wages which are high and on a par with those of South Africa. There is only one possible outcome of this situation (without foreign subsidies), and that is vacanct posts for those skills which are in demand by other sectors of the economy, in Namibia and South Africa. In summary, the Namibian economy cannot support the present civil service.

The main approach of a reform process would be to scale down and make the public service more effective. As part of this process, wages and benefit structures will have to be made much more flexible than hitherto. There appears to be a growing realisation of this, and the Windhoek administration has already embarked on this road. Air traffic controllers were thus given significant pay rises during 1989, very much beyond the conventional policy of the civil service. A more flexible salary policy means that the role of the present scale structure will have to be reduced and individual pay introduced on a much larger scale. There will also be a need for much greater use of the option available to recruit certain staff on a contract basis.

Streamlining and increasing the efficiency of the public sector are the key to solving the present problems. The main actions are likely to mainly affect other sectors, but reforms are also required in the transport and communications sectors. Against this background, it has been proposed here that the post office be incorporated as soon as possible, as it would pave the way for better manpower use in the production of postal and telecoms services, and would facilitate retention and recruitment of the required staff. This is also the reason why it is proposed that the study on road taxation (see the previous chapter) be extended to cover the possible earmarking of road user taxes for a road fund.

Although it will not alleviate the fiscal situation, on the contrary, another necessary measure is that salaries and benefits be increased soon for those staff categories of the DOT and, until incorporation, of the DOPAT who can easily transfer to other jobs. There are indications that the differences between the public and private sector are increasing, and that private salaries are sometimes 50 to 100% higher, although information is inadequate and sometimes ambiguous. There is also evidence that resignations of certains categories of staff have increased on account of competition from other sectors in Namibia. Continued losses of, for example, engineers and technicians can hardly be tolerated, and will have very negative effects on the course of development of independent Namibia. According to the departments concerned, an increase in the salaries of its key posts would quickly eliminate most of the urgent needs at present. The CPI estimates that the total current wage bill of the Government Service would increase by less than 1% if a market related salary structure were to be implemented for all engineers and technicians, including similar vocations.

It is a very poor alternative to allow the public sector to continue to loose staff with these skills and to replace them, for example, with expatriates financed with donor assistance. Such a solution is at best only temporary. It is also necessary to consider that the future total assistance to Namibia from the donor community can be viewed as more or less fixed and will at least not be directly dependent on the shortages in the civil service. Donor assistance should therefore be used where it is the most productive. Better value for the donors' money is likely to be obtained if it is used to supplement the human resources available, rather than to (partly) replace them.

13.3 The Present Staff

As mentioned, there have been speculations about the intentions of the present civil service and the professionals in the employ of parastatal and private companies after independence. Some rather dramatic assumptions have been made about the size of the exodus, based on the premise that many of the whites have come from South Africa or have close relationships with that country, and would therefore have problems in defining a future for themselves in an independent Namibia.

However, until the beginning of 1990, there was little evidence that staff of the three main institutions in the transport and communications sectors were planning to leave. The tendency towards an increase in vacancies during 1989 in both the DOT and DOPAT, can probably be explained by the salary level rather than by the independence process. It should also be mentioned that staff encountered have clearly stated that they want to stay on, when the subject has

surfaced. On the other hand, it must be recognised that discussions of this issue will naturally be held with a biased sample of people.

In any case, it must be viewed as a futile exercise to speculate about the intentions of white civil servants and professionals. What is certain and should be stated, on the other hand, is that many of these people have vital skills of great importance to the future welfare of all Namibians. As a whole, the technical assistance team which has been involved in the preparation of the STCN has been impressed by the competence encountered within the institutions concerned. It has also become convinced that the people staffing these institutions are in general very much concerned about the future well-being of the country as a whole, and would like to contribute his or her share to its development.

The answer to the question of what should be done if people decide to leave, is therefore that this must not be allowed to happen, and that actions therefore need to be taken to prevent it from taking place. This is a very important question of strategy for several reasons. But from the perspectives of the transport and communications sectors it is sufficient to reemphasise that these two sectors are very dependent on key skills in certain fields. If the members of the civil service were inclined to leave the country, Namibia would first and foremost lose those persons which the country needs the most. These people have alternatives, and the cost of a relocation is relatively small. And their departure, if very quick, will have a crippling effect on the performance of the sectors. It must also be restated that replacing, for example departing engineers with expatriates under technical assistance is a very poor use of resources. And to recruit directly from abroad is likely to be much more expensive than at present, including at current market levels in Namibia.

The policies to be pursued to retain the present staff of, *inter alia*, the DOT and DOPAT is beyond the scope of this study. But a few aspects of relevance to the transport and communications sectors need to be mentioned. The first is to emphasise the importance of salaries, and that there is a need for real improvements for certain categories. The second is that the present staff of the institutions concerned should be made fully involved in all aspects pertaining to the future development of the sectors, and as soon as possible.

The Role of Donors

The third is that a number of the projects proposed in this report should be initiated as soon as possible. All these projects are believed to be responsive to the needs as seen by both the current Windhoek administration and by the new political leadership of independent Namibia. The most acute projects have been given priority one. The ones of relevance to the organisational development and manpower needs are summarised at the end of this chapter, while all projects for improving the transport and communications networks are summarised and outlined in the following chapter. Donors have a special responsiblity in this regard and need to make quick decisions. The two sectors have seen their investment activities scaled down over a number of years, and turning the tide with the aid of donors will contribute positively to enhancing staff motivation.

The recommended projects, and in particular the technical assistance projects designated (GM), are also viewed as a vehicle for donors to determine appropriate additional assistance in case the future holds that a substantial number of the present professionals decide to resign. There does not appear to be any other alternative. The problem is that at this point in time it is impossible to plan for a contingency since there are several scenarios, depending on the speed of departure and the kind of people that decide to leave. Also, the appropriate solution depends on the circumstances. To give an example: One response to a rapid worsening of the manpower situation amongst air traffic controllers may simply be to start to procure services from commercial companies operating on a worldwide basis. On the other hand, if the drain is a slow process, it would be possible to implement training programmes and to reduce the duration of these programmes compared with present requirements. Air traffic controllers are at present trained for 3.5 years. By eliminating part of the programme pertaining to equipment not used in Namibia (e.g. radar), it is possible to reduce the duration by perhaps one year.

It must also be recognised that, as far as the team for preparing the STCN is aware, no general contingency plans for various scenarios have been developed. The only contribution that donors can make which makes sense at this point in time is therefore to increase the preparedness and capacity for dealing with a negative course of events. Again, this means funding the recommended technical assistance projects and ensuring that they are started up as soon as possible. In particular, those projects which aim at strengthening training and the personnel function (Projects D-GM-6, R-GM-1 and T-GM-1) should be seen as playing a key role in assisting with monitoring developments and as being used as a platform for determining appropriate support in case of a deteriorating manpower situation.

In addition, other recommended projects for improvements in the transport and communications network (see next chapter) should in general be implemented by making maximum use of the resources in the private sector in the country. One reason is to reduce the workload of the institutions concerned in the public sector. Another is that there is a well-established and competent local consultancy and construction business, which has seen its market shrink in recent years on account of the fiscal situation. Donors are therfore strongly advised to, as far as possible, mobilise these resources first, before importing their own.

13.4 Returnees

It is known that a number of Namibians have been trained abroad in fields of relevance to the transport and communications sectors, including air traffic controllers, telecoms technicians and maritime affairs administrators. But very little detailed knowledge is available about this group of people, including their current experience, their number, etc. UNIN in co-operation with the UNDP initiated a study during 1989 (Manpower Study in Namibia) in order to try to answer these questions and other related issues, but the result of this survey will not be available until well into 1990. By the end of 1989, very few of the returnees had applied for positions with DOT and DOPAT or indeed with other departments of the Windhoek administration.

The returnees will be a very valuable resource to the two sectors, and with the present shortages it should be easy for them to find jobs, in principle. At the same time, it has to be realised that the employment of returnees will not be a smooth process, and that specific measures will therefore have to be

taken. The main problem is related to the recruitment policies followed by the public institutions, which, as indicated above, are based on very stringent criteria with an emphasis on formal qualifications. A further complication is that there has not been much exposure in the Windhoek administration to professionals with qualifications from abroad, on account of the past political isolation and as consequence South African standards are often viewed as the only relevant ones. There is therefore a considerable risk that some returnees will see their applications turned down or will be put in positions which do not match their expectations.

On the other hand, fears have also been expressed by the staff of the institutions concerned, that they will not be able to control recruitment as hitherto, and that they will be instructed to hire the returnees even when it is found that they may not be qualified for a certain position.

Recommendations

The recruitment policies will, of course, be an issue to be determined by the new government. Under any circumstances, it appears that there is a need for some modifications to the present practices. Firstly a greater emphasis on aptitude testing is recommended, and secondly the principle of coaching, including the definition of career paths, should be established. The first means that less attention is being paid to formal merits and that more emphasis is placed on the potential of the recruit for actually mastering the tasks concerned. In this context, mention should be made of the Division for Vocational Services within the Department of Civic Affairs and Manpower, which appears to have developed considerable skills in executing aptitude testing. This division is also involved in vocational guidance. Their resources are, however, rather limited.

The second means that on the basis of an evaluation of a new employee, the department concerned should work out a programme to bridge the gap between the recruit's background and experience and those who are already employed. This may involve some additional training, and in particular coaching by an identified person. It also involves the definition of clear targets for completion of programmes and/or courses and the concomitant attainment of specific salary levels (see further below). It should be mentioned that the DOT has embarked on such a course of development for the recruitment of trainees to become air traffic controllers.

13.5 Training Needs

The Needs

In summary, the additional training and manpower development needs of the two sectors that can be foreseen in the near future include, in broad terms, the following:

(i) The formal and on-the-job training of staff required for manning posts to handle new functions in the fields of civil aviation, maritime affairs, transport planning and policy formulation, etc.

(ii) An increase in enrollment of trainees and capacity to train some of the skills which are in short supply or where shortages can develop in view of a possible higher staff turnover after independence.

(iii) The development of bridging programmes in order to widen the basis for recruitment to the functional training programmes offered by the DOT, DOPAT and TNL, in the short-term. The recruitment to these bridging courses would essentially be based on aptitude testing. In a longer perspective, the requirements of the functional training programmes obviously need to be addressed through reforms of the general education system; and

(iv) Where necessary, the formulation of career paths, including an identification of additional formal and on-the-job training required, including coaching by experienced staff to speed up the advancement of Namibians trained abroad, with inadequate experience according to the required qualifications.

Projects

The initial step in the approach for handling the first problem area above has been described in the preceding chapter. It should be mentioned that assistance in respect of the training of civil aviation, maritime affairs and policy and planning staff will be rendered by the manpower expert recommended under Project D-GM-6: Technical Assistance to the Department of Transport (Annex I). This expert will have the overall responsibility for identifying training needs, the formulation of training policies and the planning of training programmes, in co-operation with the unit concerned within the DOT and other government departments, but all the preparatory work for, for example, civil aviation staff will be done within the Directorate Civil Aviation.

The second problem is closely linked with the third problem, as additional recruitment is in general not possible without having widened the base for recruitment through bridging programmes. While the remedies to the second problem can be envisaged to be handled within the framework of each institution, the third problem is of a more general nature. The reason for this is that there are overlapping needs of several sectors which face the same problem. It is also possible to envisage that the kind of courses to be given could be offered by a number of other institutions, in co-operation with the functional training unit concerned. These institutions include, for example, the Bureau of Literacy for literacy training, private institutions such as the Otto Benecke Foundation, the Private Sector Foundation and the Rössing Foundation and a public institution such as the College for Out-School-Training (which is part of the Academy) for bridging courses in science and technical subjects and seminars to expose the trainees to the demands of an industrial environment. For this reason, technical assistance to the institutions concerned should only provide a platform which can be used for tackling the bridging requirements. It is assumed here that the initiative to formulate plans and implement programmes of this nature will be taken elsewhere.

For DOPAT, this platform in respect of the third problem as well the initial step for tackling the second problem in a somewhat longer perspective, has been included as a component of Project T-GM-1: Preparation of Master Plan for the Telecoms Network and for Incorporation of Posts and Telecommunications (Annex 4). The manpower and training requirement component of the master plan would thus not only focus on the additional needs arising out of the master planning exercise, but on the overall training needs of DOPAT, including the needs and format of bridging programmes and the need for additional capacity, facilities and equipment.

This technical assistance would in addition review the role of DOPAT's training centre in a somewhat longer perspective,

and also be seen against the background of a possible future incorporation. There is a potential for enlarging DOPAT's school in the future to train technicians and electricians needed by other operators, for example avionicians for the DOT and telecoms technicians for TNL and the private sector.

The technical assistance required by TNL is included in Project R-GM-1: Railway Training Assistance (Annex 2). It is a project comprising two phases, with the first consisting of a study to determine in greater detail what should be done in the second phase. The study would identify where it is necessary to expand the programme already initiated by TNL with the purpose of being able to recruit from a wider base, and ways and means of doing it. The implementation phase is expected to include the development of syllabi, the provision of trainers and the training of instructors. It is also envisaged that the second phase would include scholarships, with, *inter alia*, the purpose of advancing the careers of black Namibians.

Both of the above-mentioned projects would also provide assistance, if and where necessary, in respect of the fourth problem, viz. the development of recruitment programmes to ensure proper integration of returnees into the institutions concerned.

As regards the DOT, no additional provisions have been made in respect of training over and above what has been included in Projects D-GM-4: Civil Aviation Experts, D-GM-5: Maritime Affairs Experts, and D-GM-6: Technical Assistance to the Department of Transport (Annex 1). It should be noted that the first two projects include proposals for funds to enable training abroad. Also, the manpower expert to be provided under the third project, together with the staff of the new unit recommended to be set up in the DOT to handle manpower training and development, will not only give assistance to the new directorates for civil aviation and maritime affairs.

This unit would also map out other gaps regarding manpower training and development, in particular with the purpose of advancing the careers of black Namibians, and devise strategies for how to tackle these gaps. The manpower expert would furthermore be expected to liaise closely with other concerned government departments and other institutions and organisations involved in training in Namibia to ensure beneficial co-operation and maximum use of available resources in order to promote the development of the kind of skills required by the DOT in the medium to long run perspective.

13.6 An Overview of Recommended Projects

Table 13.1 summarises the projects which are recommended in order to tackle the problems identified in Chapters 12 and 13. The project descriptions are in the annexes as indicated by the table. All projects have priority 1, i.e. implementation should commence as soon as possible after independence.

Table 13.1 Projects for Organizational Development and Training

Code	Title	Executing Agency	Cost M USD	Description in
D-GM-1	Study on Road Taxation	DOT	0.4	Annex 1
D-GM-4	Civil Aviation Experts	DOT	2.5	Annex 1
D-GM-5	Maritime Affairs Experts	DOT	1.5	Annex 1
D-GM-6	Technical Assistance to the Department of Transport	DOT	1.5	Annex 1
T-GM-1	Preparation of Master Plan for the Telecoms and for Incorporation of Posts and Telecoms	DOPAT	2.2	Annex 4
R-GM-1	Railway Training Assistance	TNL	1.5	Annex 2

14. IMPROVEMENTS TO THE TRANSPORT AND COMMUNICATIONS NETWORKS

14.1 Introduction

Independent Namibia will inherit a transport and communications network of high standard, providing a good starting point for future developments. The improvements that can be envisaged for the first five to ten years after independence are very much, although not exclusively, a consequence of the South African rule, viz. the lack of attention paid to areas primarily inhabited by black Namibians, the underdevelopment of road and telecommunications connections with the SADCC member states, and the fact that independent Namibia will not be in control of Walvis Bay. The improvements required in respect of the railways can also, at least partly, be seen as a legacy of the South African rule, and the fact that the Namibian network was operated as a region by SATS until the establishment of TransNamib Ltd (TNL). The absence of an independent Namibian system meant that not all the facilities were provided that would normally be expected to form part of a railway administration.

A list of projects envisaged to be required for the near future — *and suitable for donor financing* — are contained in Table 14.1. Most of the projects have been identified elsewhere, e.g. in the documents prepared by UNIN on the Namibian economy (e.g. ref. 81), and by the Windhoek administration as part of its preparation for the country's independence (ref. 25). Many of the projects are also included in the investment plans for the next 3 to 5 years formulated by the administrations concerned. Project descriptions giving the full background to the projects are included in the Annexes, as indicated by Table 14.1.

A priority has been established for each project. Priority 1 identifies projects which are recommended for implementation to commence during the first 12 months after independence. Priority 1 has only been assigned to a number of studies for potential projects, a project for dredging the port of Lüderitz, and a project to ensure an adequate and safe service for international civil aviation at Windhoek Airport.

Table 14.1 Transport and Communications Network Projects

Code	Title	Type	Executing Agency	Cost M USD	Priority	Description in
D-CE-1	Construction of the Gobabis to Buitepos Road	S+I	DOT	14.1	2	Annex 1
D-GM-2	Study on Roads in Kavango and Caprivi	S	DOT	0.3	1[1]	Annex 1
D-CE-2	Upgrading of the Aus to Gageb Road Aus to Goageb Road	I	DOT	14.7	2	Annex 1
D-GM-3	Master Plan for Feeder Roads in Ovamboland	S	DOT	1.0	1[2]	Annex 1
R-CE-1	Track Repair and Upgrading; Seeheim to Lüderitz Line	I	TNL	9.0	2	Annex 2
R-CE-2	Establishment of Quarry; Seeheim to Lüderitz Line	I	TNL	3.5	2	Annex 2
R-CE-3	Realignment Study; Seeheim to Lüderitz Line	S	TNL	0.2	2	Annex 2
R-CE-4	Bridge Strength Survey; Seeheim to Lüderitz Line	S	TNL	0.1	2	Annex 2
R-ME-1	Locomotives	S	TNL	0.3	1	Annex 2
R-ME-2	Workshop Facilities	I	TNL	3.5	2	Annex 2
R-ST-1	Radio Control System on the Lüderitz Branch	I	TNL	0.3	2	Annex 2
P-GM-1	Study of Future Port Facilities for Namibia	S	MOWTC	1.5	1	Annex 3
P-CE-1	Dredging at Lüderitz	I	TNL	1.0	1[3]	Annex 2
P-CE-2	Improvements to Lüderitz Port Area	I	TNL	1.5	2	Annex 2
P-ME-1	Marine Craft	I	TNL	1.0	2	Annex 2
P-ME-2	Cargo Handling Equipment	I	TNL	2.0	1	Annex 2
D-ME-1	Instrument Landing System at Windhoek Airport	I	DOT	1.0	2	Annex 1
T-TC-1	Improvements to the Telecoms System in Ovamboland and Kavango	I	DOPAT	11.6	2	Annex 4
T-TC-2	International Telecommunications;	I	DOPAT	8.0	2	Annex 4

S = Study
I = Capital investment project
D = Road or aviation project
R = Railway project
P = Port project
T = Telecom project

Priority 1: Implementation to commence within 12 months after independence

Priority 2: Implementation to commence later than 12 months after independence.

1) This study may be locally financed. Total investment costs projected at about USD 50 million

2) This study may be locally financed

3) The project may be partially locally financed

Priority 2 identifies projects which should not start during the first 12 months after independence. Although some of these projects may be viewed as urgent, it is not possible to handle all projects immediately after independence.

The costs indicated in the table are the total costs, including both local and foreign cost elements. It is possible to subdivide the costs into these two elements, if required. The costs are estimated at mid-1989 prices and include technical but not price contingencies. They are based on the assumption of contractors or consultants undertaking the work. Consultancy fees are based on international norms (which are much higher than the local), while contract costs reflect the present costs in the country.

14.2 Port Projects

Two types of port projects are included, both dictated by the circumstances surrounding Walvis Bay. Firstly, there is a need for a thorough study of future port facilities and to develop a strategy in this regard. Secondly, it can be expected that improvements to the existing port facilities in Lüderitz will be given high priority soon after independence. This section reviews the purpose of the proposed study on the long-term development of port facilities. It also includes a review of alternative locations along the coast, where new port facilities could be provided. It should be noted that the presentation does not contain any recommendations as to whether new facilities should be provided or not, and if so, where. The final part of this section reviews the projects which are recommended for implementation in a short-term perspective to upgrade the port of Lüderitz. Additional projects to improve the access routes to Lüderitz are described in Sections 14.3 (Road Projects) and 14.4 (Railway Projects).

Study on Future Port Facilities for Namibia

The uncertainty of the future status of Walvis Bay and access to its port facilities for international trade implies that there is a need for studying the provision of alternative port facilities. But there are other reasons as well. One is that it seems unlikely that the Namibian fishing industry can be developed to the full benefit of the country as long as Walvis Bay remains under South African control. Furthermore, the centre of the fishing activities is in the waters to the north of Walvis Bay.

Another reason is that the port facilities offered by Walvis Bay are inadequate to serve the long-term needs of Namibia. The primary constraint is the depth of the entrance channel and of the water alongside the berths, which restrict the size of ships that can be served. It would be possible, for example, to make oil imports far more economical by using much larger ships than the 24 500 dwt that is the maximum size of tanker which can currently be handled at Walvis Bay.

The only natural harbours on the Namibian coast are at Walvis Bay and Lüderitz. There are other bays which may offer advantages in siting new ports, but they offer little natural protection. However, the wave climate north of Swakopmund is moderate, so it would be feasible to construct a harbour on the open coast. The wave climate at Lüderitz is more severe, but the natural protection means that it would be possible to develop the facilities with only a small expenditure on breakwaters.

To minimise investment costs, new port facilities should be located near to the existing road and rail infrastructure. The two locations for development are therefore Lüderitz, and a location north of Swakopmund that could be connected to the existing road/rail links to the interior.

The proposed study is a complete feasibility study, including preliminary design (in Namibia referred to as 'basic planning'). The purpose is to provide a complete basis for the new government to arrive at a decision on the need for and how to construct new port facilities. In particular, the study will identify and perform all the technical, environmental and economic analyses which are required to answer the following questions:

(i) Which is the best location on the coast?

(ii) Which is the best strategy for the construction, including timing, phasing, operations and financing of the new facilities?

(iii) What are the economic implications for Namibia of constructing the new facilities?

The proposed study is envisaged to address the merits of phasing the construction works. The first phase would focus on the need for providing facilities for in- and off-shore fishing fleets and operations, including coast-guard, fishery protection and pollution control services. The second phase would comprise extension of the facilities to handle commercial shipping operations, including associated required feeder systems, e.g. new rail links.

The reasons for considering a phased construction programme are:

— the specific needs of the emerging Namibian fishery sector, including the provision of protection services; and

— the unique financing opportunities that are afforded through the imposition of fees on fishing operators.

A study with essentially the same focus has recently been initiated by the Windhoek administration and a commission has been appointed under the chairmanship of the Secretary for Economic Affairs. The study is divided into three phases: the first would identify the requirements, the second would focus on the marine environment and other site investigations, and the third phase would include the engineering studies. In December 1989, the commission appointed a consultant — apparently a South African firm — to carry out part of the second phase. It is unclear as to how far the first phase has advanced, if at all.

The proposed study is envisaged to continue the work that has been initiated by the Windhoek administration and to allow the first government of independent Namibia to exercise full control over this activity. Full terms of reference for the study have been prepared and are included in Annex 3.

Lüderitz; Long-term Development

Lüderitz already offers several of the amenities required for the first phase of a long-term development, and could be easily expanded in this respect. The problem is its location, as most of the fishing is in the waters to the north, i.e. from Walvis Bay to the Cunene River. Lüderitz can also be developed into a port for handling most of Namibia's import and export requirements, as it is a large natural harbour, with adequate space. However, it is unlikely that developments would permit the use of ships with a draft greater than 10 m as excessive siltation may occur if the harbour is dredged

deeper. This would limit the sizes of ships to make use of the port to those currently serving Walvis Bay. Breakwaters may be required to provide additional protectionfor some developments, but they would not be long and costs would not be excessive.

A study carried out in 1986 (ref. 60) indicated that the costs of new facilities in Lüderitz would be about R 50 to R 100 million depending on the location in the Bay, including guays, dredging, some equipment and access roads and rail links. This study did not include the costs of equipment and storage facilities for anything but containers. Nor was there any provision for fuel and fuel tankers. If consideration is given to these items and the cost estimates are updated to 1989 prices, the development of Lüderitz into a fully-fledged harbour would entail a cost of, say, USD 100 million. In addition, there is a need to improve road and rail links to Keetmanshoop/Seeheim, but these may be required in any case (see below).

A long-term development of the port of Lüderitz will require the construction of facilities in a new location in the Bay, due to the limitations of the present location on both the sea- and landsides. The above cost estimates are also based on new locations for the wharves. However, already in a short term perspective it will be necessary to (i) promote Lüderitz as a regional centre for the southern part of the country and (ii) to exploit the forecast improved competitive position of shipping in the 90s (cf. Chapter II). The proposed short-term improvements are proposed to be made at the existing location (see below).

Port Development North of Swakopmund

A new port could be developed at several points between Swakopmund and Cape Cross. The most likely locations are Wlotzkasbaken (Rock Bay), Henties Bay or Cape Cross Bay. A development north of Cape Cross does not at present appear economical because of the cost of providing road and rail access. It would, however, be possible to construct a self-contained fishing harbour north of Cape Cross, to serve the northern fishing fleet. Studies carried out in the late 60s thus concluded that it would be feasible to construct a fishing harbour at Möwe Bay (refs. 40, 63).

Cape Cross is of particular interest (although rather foggy) as there is a "lagoon" of 4,000 hectares behind a "sea wall" which has been created by sediment from the Omaruru Delta. The wall is only 1.5 to 2.0 m above sea level. The "lagoon" is about 4 km wide at its widest and is composed of salt, sand and silt to a depth of between 8 and 26 m. A part of this "lagoon" could easily be dredged out to form a harbour but the question of siltation would require careful analysis and corrosion may be difficult. The advantage of Wlotzkasbaken is that there is a sandspit, which is growing towards the north.

Henties Bay appears, however, to offer the best location for the following reasons:

- the natural bay is of a sufficient size to form the basis of a new port and although it provides little protection, it would reduce the problems of siltation within the port;
- the existing town is big enough to provide infrastructure, including water and electricity, for a first stage development;
- it is unlikely to cause major problems to the natural environment (e.g. the seal colony at Cape Cross); and
- there are existing roads to Swakopmund, Usakos and Uis.

A preliminary assessment of the movement of sand along this coastline north of Swakopmund by Hydraulics Research Ltd concluded that it may be of the order of 1-2 million cubic metres per year, and that siltation within a major port such as Henties Bay might be several hundred thousand cubic metres per year. This siltation could be removed by dredging, and whilst it would be expensive it would not rule out the construction of a major port.

A new general cargo port would require the construction of breakwaters, and extensive dredging within breakwaters. The cost of these works is likely to be USD 100-150 million, excluding the cost of any port facilities within the breakwaters. The port infrastructure, services, quays, equipment and other facilities would cost in excess of USD 150 million. In addition a new railway line, about 90 km long, must be constructed to connect with the existing main line, and the road to Swakopmund would have to be rebuilt. The cost of these works would be about USD 250 million, so that the total port development would entail a cost of approximately USD 500 million.

A new port at Henties Bay would be an ideal location to handle general cargo for distribution around the country. It is also well placed to handle the major mineral exports. In addition Henties Bay could be developed as a major fishing base, both for inshore and offshore fleets, and as a coastguard/fishery protection base.

As an alternative to a major development within Henties Bay, it would be possible to (initially) develop a small harbour within the lee of Henties Bay, where the problem of siltation may be reduced. This development would primarily be used for fishing, and coastguard/fishery protection services, but provision for handling small general cargo vessels could also be made. A small development would not require upgrading of road or rail systems. The cost of such a small harbour would be in the region of USD 70-150 million.

Projects to Upgrade the Port of Lüderitz; Short-term Development

New port facilities will under any circumstances require quite some time for their implementation. Meanwhile, it is necessary to make independent Namibia less dependent on Walvis Bay and to promote the shipping and fisheries sectors, albeit on a small scale. The promotion of Lüderitz to become a focus of development in the southern part of the country can furthermore be expected to be high on the agenda of the first government of independent Namibia, and the most important means for fulfilling such an ambition would be to expand the port facilities and rail and road access routes. Such a strategy would also fit into the expected future development of traffic in the region with a trend from railway and to road and maritime traffic, as discussed in Chapter II.

For these reasons, a number of projects are proposed to improve the conditions in the port of Lüderitz. These projects would transform Lüderitz into a commercial port able to serve primarily coastal traffic with neighbouring states involving vessels, including ro-ro vessels, of up to 5 000 dwt, to be handled alongside the jetty, and ro-ro vesels up to 9,000 dwt to discharge at the head of the jetty. Vessels (including self-unloading container ships) up to about 25,000 dwt would be served by lighters. In addition, Lüderitz could be used as

a basis for fishery protection and coast guard vessels, although the location is not ideal.

The four proposed projects in respect of Lüderitz make maximum use of the existing facilities and are not to be viewed as a long-term solution. Proposals for the long-term development are instead expected to come out of the above-mentioned study. The projects (P-CE-1, P-CE-2, P-ME-1 and P-ME-2) would involve:

- dredging at the head of the jetty to -7.0 m or -7.5 m, i.e. 1 to 1.5 m below the previously dredged depth of -6.1 m. This is an urgent project as a recent survey has indicated that siltation has reached an unacceptable level;
- the provision of a ro-ro ramp on the side of the existing jetty;
- the construction of new storage areas between the jetty and Shark Island, to be used for improved lighterage operations and transhipment between ship and rail;
- relaying of railway sidings and construction of roads;
- cargo handling equipment, including 1 mobile port tower crane, 1 general purpose crane, forklifts, tractor units and trailers; and
- one tug boat, and four flat-top barges (as the existing lighters are unsuitable for containers).

14.3 Road Projects

The proposed road projects aim at improving (i) connections with SADCC member states, (ii) the road network in the northern part of the country, and (iii) access to Lüderitz. All the projects have high priority in DOT's development plans.

Construction of the Gobabis to Buitepos Road

The project would provide for a feasibility study and upgrading of the road from Gobabis to the Botswana border to bitumen standard. The road is 119 km at present, of which 16 km close to Gobabis, are bitumen surfaced and the rest is a gravel road. A feasibility study, including preliminary design, for a new road between Sekoma, Ghanzi and Mamuno, on the Botswana side of the border, was completed in November 1989. The proposed road would link the Namibian and Botswana trunk road networks, if extended to Gobabis. It would also provide a direct route between Transvaal, and central and northern Namibia, and would reduce the current road distance between Johannesburg and Windhoek by about 450 km.

The feasibility study concluded that construction of the new road to bitumen standard would yield an economic return of about 20 %. The project is accorded high priority by the Government of Botswana, and initial discussions have been held with potential financiers. It is envisaged that construction could start in 1991 and that the project would be completed by 1995.

A route investigation recently carried out by DOT reviewed a new alignment on the second half of the road from Gobabis to the Botswana border, as an alternative to the existing alignment. It is necessary to review the findings of this investigation and to prepare a feasibility study, including an economic analysis against the background of the findings of the above-mentioned study for the proposed Mamuno to Sekoma road.

Master Plan for Feeder Roads in Ovamboland

The project would provide technical assistance to prepare a master plan for feeder roads in Ovamboland. On the whole, there is a shortage of roads in this district, and Ovamboland is also underserved in comparison with other parts of the country (cf. Section 5.2). As the agricultural potential of the district is underdeveloped, it can be expected that the government will give high priority to the development of this sector after independence. This will require extension of the feeder road network.

It is also anticipated that studies will be initiated after independence focusing on the socio-economic development of Ovamboland. The result of these studies will be an essential input into the proposed master plan and there is therefore a need for close co-ordination and the formulation of terms of reference on the basis of the scope of these other exercises.

The master plan is not proposed to cover other districts in northern Namibia, which are also underserved by roads. DOT has recently carried out a study on how the feeder road network could be improved in Eastern Caprivi and has already commenced the construction of some of the proposed new roads. The situation in this district is also somewhat better than that revealed by the official statistics, as other roads have been constructed which have not been proclaimed.

In Kavango, settlements are currently almost exclusively to be found on the bank of the Okavango River, along which runs a fair gravel road. Better access can therefore first and foremost be accomplished by improving this road. A review of the upgrading of parts of the gravel sections of this road is included in the following project, which will also review the trunk road network in Eastern Caprivi. Also, it can be envisaged that the interior of Kavango could be opened up in the future. The review of the associated road requirements should then preferably be undertaken as part of a comprehensive development study.

Study on Roads in Kavango and Caprivi

The purpose of the Study on Roads in Kavango and Caprivi would be to examine the economic viability, and where required, carry out preliminary design of the building of the following roads to bitumen standard:

- Rundu (Takwasa) to Bagani, 151 km;
- Rundu towards Nkurenkuru, 8 km;
- Bagani to Kongola, 191 km; and
- Katima Mulilo to Ngoma, 54 km.

If the first and second of these road segments were built to bitumen standard, Zambia and Namibia would be linked by an asphalt road, except for the crossing of the Zambezi at Katima Mulilo. If, also, the fourth section is provided, Botswana, as well as other SADCC-states, could be reached via an asphalt road. The third segment would primarily improve the road to the west of Rundu, which is now heavily utilised and accident prone. This road is also likely to develop into a major artery to Ovamboland in the future.

Detailed design, including tender documents, has been prepared for the whole *Rundu to Bagani* section. The construction of the first section, 53 km from Rundu to Takwasa was completed during 1988. The new road follows a new alignment, in general located 4-5 km south of the old road, which runs parallel to the Okavango River. The new road

primarily serves the long distance traffic, while the settlements along the river are served by the old road. The extension from Takwasa to Bagani is also proposed by DOT to be constructed to the south of the existing road. Traffic on the existing road is hindered by cattle crossing the road on their way from the fields to the waterpoints by the river and back, and also by pedestrians and other slow moving traffic, e.g. ox carts.

The *8-km long section Rundu towards Nkurenkuru* consists of the western approach to Rundu. DOT has selected a new alignment further away from the river. According to DOT, the width of the required road reserve, 60 m, makes it difficult to upgrade the existing road as settlements can now be found within this width. Consultants are currently preparing a detailed design, which is expected to be ready by the end of FY 1989/90.

The existing road, between *Bagani and Kongola*, which traverses the Caprivi strip, is a well maintained good gravel road and appears to be structurally strong. It passes through flat terrain with sparse vegetation. Western Caprivi is a game park and is therefore uninhabited. The existing bridge over the Okavango River east of Bagani is a high level, single lane bridge in good condition. It is, however, necessay to study its loading capacity. The structure at the crossing of the Kwando River consists of four large metal pipe-arch culverts. No design for an upgrading of the road to bitumen standard has been carried out.

The existing road between *Katima Mulilo and Ngoma* is a well maintained gravel road and has a good geometrical standard with the exception of a few places. Sections of the road pass over low-lying areas and are flooded during years of heavy rains, when these sections may become impassable.

From the border post at Ngoma towards the Namibia-Botswana border line, the road is a single lane 4-5 m high embankment. On the Namibian side there is a single lane bridge and a structure consisting of four pipe culverts. Over the Chobe River, which marks the border, there is a second bridge with shared maintenance responsibilities between the two countries. The bridges appear to be in good condition. About 10-15 heavy goods vehicles cross the border every day.

Reconstruction of the first 12 km from Katima Mulilo commenced during 1989. For the remaining section (54 km), the new alignment has been studied but no proper design prepared.

It is necessary to conduct feasibility studies of all four components. The objective would be to analyse the economic viability and to recommend an optimum programme with regard to choice of improvement alternative, time schedule, etc. For the Takwasa to Bagani section, it is necessary to review the design which has already been prepared in light of the feasibility study and recommend modifications where necessary.

Upgrading of the Aus to Goageb Road

It is proposed that the existing gravel road section between Aus and Goageb on route B4, Lüderitz to Keetmanshoop, be upgraded to bitumen standard. This section is the only gravel section on the Keetmanshoop to Lüderitz road. It contains some dangerous spots the mainly consisting of sharp horizontal curves normally at the ends of long straights. The terrain is generally flat except for a few limited sections. There are also drainage problems along the section.

DOT has completed route selection surveys for the entire section and detailed design is in progress. Completion of design works, including tender documents, was estimated to require another 6 months in September 1989.

No feasibility study has been carried out on the project. It is doubtful whether current traffic levels would justify an upgrading of the section in the near future. However, it can be expected that the first government of independent Namibia will accord the project high priority in order to ensure the best possible access to Lüderitz.

14.4 Railway Projects

Of the 7 proposed railway projects, five are designed to ensure that the line between Seeheim and Lüderitz is upgraded to an acceptable standard, in line with the objective of developing Lüderitz into a commercial port for coastal traffic. The other two are related to problems which TNL face in respect of locomotives and wagon repair services.

Projects for Lüderitz to Seeheim Branch Line

The *Track Repair and Upgrading* project would continue ongoing upgrading programmes on the Seeheim to Lüderitz branch line in order to ensure the passage of 16.5 tonne axle load wagons. It is divided into two phases, with the first phase focusing on the weakest sections of the track and formation. After the repair and upgrading project is completed, the line will be of a sufficiently high standard to transport about 1 million tonnes p.a.

Ballast for this branch line is currently transported from Keetmanshoop, but only supplied to parts of the line. Future requirements, will involve much greater demands for ballast and will warrant the opening of a quarry along the line. The *Establishment of Quarry* project would provide for a semi-mobile crushing plant and associated equipment, and spares for the opening of this quarry.

The *Realignment Study* project would determine the possibility of realigning the section of the Seeheim to Lüderitz line between the stations of Rotkop and Oil Sites, near Lüderitz, in order to provide a route which is clear of moving sand dunes and has a more stable formation which will not be subject to washaways. The *Bridge Strength Survey* project is for the inspection and testing of all bridges to determine if they are strong enough to carry a 16.5 tonne axle loading. Repair, strengthening or replacement designs would be prepared.

The fifth project, *Radio Control System on the Lüderitz Branch Line*, would increase the operational capacity by extending the radio control system. TNL has already replaced the old token block system of the train control on the main lines with a radio control system. The system operates to Keetmanshoop and will be extended to the southern border of Namibia by 1990.

Other Railway Projects

The existing fleet of TNL locomotives are about 20 years old. The fleet is more than adequate for the present volume of traffic, but the locomotives only have a further life of 8 to 10 years. At the same time there is considerable uncertainty as to the needs in the future, in view of a possible decline in

traffic, as discussed in Chapter 11. There is therefore a need for TNL to formulate a strategy for the development of its locomotive fleet, based on the evaluation of various options, including the re-engining and/or rebuilding of existing locomotives and the acquisition of new ones with a higher hauling capacity than the present units, etc. Under the project *Locomotives*, technical assistance would be provided for the preparation of the study to be used for the formulation of the required strategy.

The present wagon repair facilities in Windhoek consist of a short portal frame shed with four tracks, and with hydraulic jacks as the only lifting equipment. Wagons therefore have to be sent to South Africa for major repairs. Carriage and wagon painting is carried out in an open area and is only possible when the weather is favourable. Also, the workshop laboratory does not have the necessary equipment to carry out water analyses and certain oil analyses, and this work is therefore currently done in South Africa. The *Workshop Facilities* project would rectify this situation by providing a workshop for the maintenance of carriages and wagons, and additional laboratory facilities. As part of the project, the proper location would be studied, as there is a potential for establishing them outside Windhoek.

14.5 Civil Aviation Projects

As a whole, the civil aviation sector is provided with adequate and suitable facilities. The only apparent need is for an *Instrument Landing System (ILS) at Windhoek Airport*. Windhoek is at present mainly used by airlines flying to and from South Africa, Zambia and Europe (Frankfurt). Its main runway cannot be converted into a precision approach runway (offering reduced landing minima) as the spacing between the runway, taxiway and apron is inadequate. It is, however, possible to install an ILS, in spite of the fact that the landing minima cannot be reduced. An ILS would improve the regularity at the airport by providing approach guidance, particularly to large jetliners and during thunderstorms.

The need for an ILS will be accentuated by the forthcoming independence, which is expected to lead to a considerable increase in aviation, with new routes and flights to the neighbouring countries and Europe. Airlines have also expressed a need for such a system and ICAO's Air Navigation Plan for the Africa-Indian Ocean Region (ref. 32) calls for an ILS Category I to be provided at Windhoek Airport.

14.6 Telecommunications Projects

The two telecoms projects aim at (i) improving the services in the northern part of the country, (ii) improving connections with neighbouring states, and (iii) reducing dependency on South Africa. This section also reviews the possibility of establishing alternative international connections in a short-term perspective to reduce dependency on South Africa.

Improvements to the Telecoms System in Ovamboland and Kavango

The project comprises the replacement of manual telephone exchanges and additional transmission capacity in order to improve and extend telephone services in Ovamboland and Kavango.

The exchanges in the northern part of the country are all manual, based on manual switchboards. Their junction lines are saturated. In some areas there is almost a complete absence of services, for example in Bushmanland. In other parts, the capacity is clearly inadequate.

The development of the telecommunications system in Eastern Caprivi is currently restricted by the transmission line to Rundu, and it is not foreseen that a large scale development is possible until a long-term solution to this problem has been found. A review of the telecoms network in Eastern Caprivi will be carried out when preparing the master plan proposed as part of project T-GM-1, and as part of project T-TC-2 on international connectivity (see Annex 4).

To improve telecoms facilities in Ovamboland and Kavango, DOPAT is proposing to extend the trunk network by laying optical fibre cables from Tsumeb to Oshakati, and from Tsumeb to Rundu via Grootfontein. The former project has already been initiated and is expected to be completed during FY 1990/91. It is also proposed to automatise the exchanges in Oshakati, Ondangwa, Ongwediva and Rundu, as well as to replace and upgrade the exchange in Tsumeb. The Rundu exchange would serve the whole of Kavango and would also act as a switching exchange for Caprivi.

At present, Bushmanland is only served by an HF-radio link to Walvis Bay. To improve services, DOPAT is proposing the construction of an open wire route from Grootfontein. It is envisaged that a manual exchange, made available through replacement by an automatic exchange elsewhere, would be used.

DOPAT's proposals are presented in a project document entitled Development Projects (ref. 13). They are compatible with the present structure of and ongoing extensions to the network. They are also believed to be financially viable. It is proposed that the project in respect of Ovamboland and Kavango be reviewed initially as part of the proposed master plan (see Project T-GM-1), which would also review the financial viability of the projects and prepare detailed cost estimates on a priority basis.

It is unlikely that the fiscal situation will allow local funds to be made available for the implementation of all the projects proposed by DOPAT for the northern part of the country for quite some time. The current manpower shortages also prevent a timely implementation of the the projects. It is, however, anticipated that if donor assistance is provided in respect of Kavango and Ovamboland, it will be possible for DOPAT to implement the proposed components in respect of Bushmanland with its own financing and staff.

International Telecommmunications

The project would comprise a feasibility study on how to best improve Namibia's international connectivity, and detailed design and implementation of the recommended alternative.

All telephone calls to and from Namibia are routed through the international switching centres in Johannesburg and Cape Town, via the microwave link between Windhoek and Upington. The capacity of this route is adequate at present, reflecting the fact that most international traffic is with South Africa. It is not anticipated that capacity problems will develop soon after independence on account of more traffic to and from other countries.

However, the present arrangements make independent Namibia very reliant on South Africa. It has also become an

accepted standard in international telecommunications to allow for diversity, and for that reason most of the countries in Southern Africa now have access to more than one route for international services.

A number of alternatives have been evaluated as part of a pre-study of how to provide alternative links. This study identified two main alternatives as feasible:

(i) An earth station in Windhoek. The station would be used as a gateway to one or two terminating points, probably the UK and West Germany. The space segment would be expected to be provided by the INTELSAT system. Provided neighbouring countries are also served by INTELSAT, it would be possible to establish circuits to these countries too.

(ii) A digital microwave link from Windhoek to the Botswana border, to link up with the microwave link system currently being constructed in Botswana (cf. Chapter 5). It would provide direct access to SADCC-member states and also international access via the PANAFTEL network and the earth stations and international switching centres in Gaborone, Harare and Lusaka.

Other solutions, for example the construction of an optical fibre cable to link up with the Botswana network were found to be inferior for technical and financial reasons. This refers, however, only to the link between Windhoek and Gobabis, while the possibility of laying an optical fibre cable from Gobabis to the border still has to be investigated.

For both alternatives, the digital exchange in Windhoek would have to be upgraded.

It has as yet not been possible to prepare preliminary designs of the two alternatives and to carry out proper feasiblity studies. It is also unclear how many channels are required for overseas traffic, on account of a lack of statistics. The indications are, however, that about 40 channels would be sufficient for each of the terminating points for a number of years.

The building of a link to connect up with the Botswana system is likely to be slightly more expensive in terms of investments. There are, however, certain other advantages offered by this alternative, including:

- it would enhance capacity on the Windhoek-Gobabis route and provide circuits for radio and television transmissions;
- the towers could be used for establishing radio systems to serve rural areas;
- it could provide a new route for serving Eastern Caprivi by making use of the Botswana system between Mamuno and Kasane and by constructing a new link between Kasane and Katima Mulilo (about 110 km). This is likely to improve services as the quality and capacity of the present route via Rundu are inadequate; and
- it would give very good access to the neighbouring countries.

International Telecommunications; Short-term Solution

To ensure that vital international telecommunications are possible in case the microwave link to South Africa is out of service and before the above-mentioned additional link has been implemented, there may be a need for a short-term solution. The only technically feasible solution which can be implemented in a short-term is the establishment of one channel earth satellite stations in the INMARSAT system.

INMARSAT is an international organisation (at present 57 member states), which provides space segment capacity for mobile services, e.g. maritime, aeronautical and land mobile services. The latter are used for rescue operations, by exploration teams and scientific expeditions, and as back-up communications networks.

The transportable earth stations give full access to the international telephone and telex network. One earth station can accommodate one telephone and one telex channel, and access to the worldwide telecoms network is via a fixed coast earth station. Communications are established by standard direct dialling procedures. Ordinary telephone or telex terminals are used.

The price of a typical INMARSAT transportable earth station is about USD 50,000. The tariff for the service is about 10 USD/min. Normal telephone tariffs may be added for utilization of the public telecoms network in the terminating country. In view of the low costs involved, this project has not been included in the project catalogue.

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ANNEX 1. PROJECT DESCRIPTIONS; DEPARTMENT OF TRANSPORT

Project D-CE-1: Construction of the Gobabis to Buitepos Road

Description

The project would provide for a feasibility study, including route selection analysis, detailed design and construction of the road between Gobabis and Buitepos, on the border with Botswana, to bitumen standard.

Background to and Need for the Project

The main road 55 Gobabis - Buitepos consists of a 103 km gravel road and a 16 km bitumen surfaced road close to Gobabis. The first half of the gravel road section has a good horizontal alignment which meets the requirements of an asphalt road with a design speed of 120 km/h. The second half of the road up to Buitepos will require realignment when upgraded to bitumen standard. The existing road passes over a section of 20-22 km of rolling to hilly terrain and at several places the sight distance is substandard.

Traffic in 1988 was 462 vehicles per day (vpd), 17 % thereof heavy, at a point 5 km east of Gobabis, down to 25 vpd at the entrance to Buitepos. Only about 5 vpd cross the border.

A feasibility study, including preliminary design, for a new road between Sekoma, Ghanzi and Mamuno, on the Botswana side of the border, was completed in November 1989. The proposed road would link the Namibian and Botswana trunk road networks, if extended to Gobabis. It would also provide a direct route between Transvaal and central and northern Namibia, and would reduce the current road distance between Johannesburg and Windhoek by about 450 km.

The feasibility study concluded that construction of the new road to bitumen standard would yield an economic return of about 20 %, based on a forecast of about 200 vpd crossing the border at the turn of the century. About 75 % of the cross-border traffic would be diverted traffic from the current routes between South Africa and Namibia, including about 40 large trucks per day.

The project is accorded high priority by the Government of Botswana, and initial discussions have been held with potential financiers. It is envisaged that construction could start in 1991 and that the project would be completed by 1995.

Route Selection and Feasibility

A route investigation was recently carried out, including field trips, and the findings are summarised in an interim report — in Afrikaans — which is available at DOT. The study reviewed a new alignment on the second half of the road to Buitepos, as an alternative to the existing alignment. Close to Buitepos, two further subalternatives were studied. The alternatives reviewed would reduce the total distance between Gobabis and Buitepos by 5 to 8 km. No detailed economic analyses were carried out. It is necessary to review the findings of this investigation and to prepare a feasibility study, including an economic analysis, against the background of the findings of the above-mentioned study for the proposed road Mamuno to Sekoma.

Components and Costs

The project is estimated to cost:

	USD million
(i) Feasibility study, including review of route selection report (6 man-months)	0.1
(ii) Detailed design, including tender documents (50 man-months)	0.8
(iii) Construction supervision	1.0
(iv) Construction	12.2
Total:	14.1

Implementation

It is envisaged that consultants would be engaged for the study, design and supervision. The study phase would last 8 months, detailed design 24 months and construction would require 24 months. The project should be implemented starting after the initial 12 months after independence (priority 2).

Project D-CE-2: Upgrading of the Aus to Goageb Road

Description

It is proposed that the existing gravel road section between Aus and Goageb on route B4, Lüderitz to Keetmanshoop, should be upgraded to bitumen standard.

Background

This section is the only gravel section on the Keetmanshoop to Lüderitz road. It contains some dangerous spots mainly consisting of sharp horizontal curves normally at ends of long straights. The terrain is generally flat except for a few limited sections. There are also drainage problems along the section.

Traffic was recorded at about 60 vpd at a point 29 km west of Goageb in 1988, therof 13 % heavy vehicles. It is estimated that the number of vehicles increases up to 120 per day during the holiday seasons.

DOT has completed route selection for the entire section and detailed design is in progress. The new road follows partly the existing road (43 km) and partly a new alignment (56 km). The road is divided into two sections:

- Section 1: Goageb - Weltevrede, 58 km
- Section 2: Weltevrede - Aus, 41 km

In September 1989, detailed design was complete for Section 1, except for four major structures and tender documents. For Section 2, the topographical survey was complete, while the materials investigations were still outstanding. Completion of design works, including tender documents were estimated to require another 6 months.

The new road will be designed to permit a speed of 120 km/h, i.e. the normal design criteria for trunk roads in flat terrain. Only marginal cost reductions can be achieved by reducing

the design speed over some sections of rolling terrain and is not considered worthwhile.

The cross-section of the road consists of a carriageway of 2 x 3.4 m and gravel shoulders of 2 x 1.5 m, thus a total formation width of 9.8 m. The cross-section also corresponds to the normal standard for this class of road in Namibia. At Goageb, however, the shoulder width is increased to 2.4 m to allow for pedestrians along the road.

The Need for the Project

No feasibility study has been carried out for the project. It is doubtful if current traffic levels would justify an upgrading of the section in the near future. However, it can be expected that the first government of independent Namibia will accord the project high priority in order to ensure the best possible access to Lüderitz. Firstly, Lüderitz will be the only port under Namibian control after independence, and it is therefore likely that Lüderitz will be expanded to offer an alternative out/inlet to Walvis Bay, at least to some extent. Secondly, the development of Lüderitz can be expected to be promoted for regional reasons and to revive the port and the town as a centre of activities for the south-western part of the country. Finally, as discussed in Chapter 11 of STCN, developments in Namibia during the 90s will tend to shift traffic from rail and on to trucks and ships. There is, hence, a potential for an increase in traffic to and from the port during the post-independence period.

Components and Cost Estimate

The estimated costs are:

	USD million
(i) Construction Section 1	8.6
(ii) Construction Section 2	5.0
(iii) Construction supervision	1.1
Total:	14.7

Implementation

The envisaged construction periods by contractors are 24-27 months for Section 1 and 15 months for Section 2. The project is recommended for implementation during the second phase, i.e. one year after independence (priority 2).

Project D-ME-1: Instrument Landing System at Windhoek Airport

Description

The project would provide for the design and installation of an instrument landing system (ILS) at Windhoek Airport.

Background to and Need for the Project

There is currently no precision approach aid at the Windhoek Airport (formerly J.G. Strijdom Airport), which is the main Namibian airport for international traffic. At present the airport is mainly used by airlines flying to and from South Africa, Zambia and Europe (Frankfurt). The main runway cannot be converted into a precision approach runway (offering reduced landing minima) as the spacing between the runway, taxiway and apron is inadequate. It is, however, possible to install an ILS, in spite of the fact that the landing minima cannot be reduced. An ILS would improve the regularity at the airport by providing approach guidance, particularly to large jetliners and during thunderstorms.

The need for an ILS will be accentuated by the forthcoming independence, which is expected to lead to a considerable increase in aviation, with new routes and flights to the neighbouring countries and Europe. Airlines have also expressed a need for such a system and ICAO's Air Navigation Plan for Africa-Indian Ocean Region calls for an ILS Category I to be provided at Windhoek Airport.

Components, Costs and Implementation

Consultant services for about 3 man-months would be required to prepare detailed design and for supervision. The cost of an ILS installation, Category I, varies with the terrain formation and availability of acceptable power quality, etc., but can in this case be estimated at between USD 0.7 - 1.0 million, including consultancy fees. Installation would be done by a contractor. The project is urgent (priority 1) and is recommended for implementation during the immediate post-independence period.

Project D-GM-1:Study on Road Taxation

Description

The project would provide technical assistance to the Department of Transport (DOT) to undertake a study on (i) the structure and level of road taxes, and (ii) the need for and appropriateness of earmarking (some) of the road taxes for road maintenance and construction.

Background to and Need for the Project

Namibia has a well-developed road network maintained to very high standards. Public roads are the responsibility of the DOT; see further STCN, Chapters 5 and 6.

The money spent by DOT on roads is entirely obtained from the Central Revenue Fund (CRF). The real amount of money allocated to DOT has been falling sharply during the past decade, primarily due to a significant reduction in real investments but also in maintenance activities. The reason for this development is partly the fiscal situation, partly that most of the roads perceived as required have now been built. Current allocations for maintenance activities are according to DOT not adequate in order to ensure the maximum long-term economic use of the road network. The low allocations to maintenance in recent years have primarily affected the condition of the vehicle park used for maintenance, which is now ageing and deteriorating quickly.

The only road-related taxes paid into the CRF at present are fees for the licencing of vehicles, including abnormal loads, and a fuel levy (on diesel and petrol), implemented during FY 1983/84. These fees are set by the Windhoek administration.

There are additional levies, taxes and charges on liquid fuel products, but information is scant and are subject to confidentiality in terms of the South African Petroleum Products Act (Act No. 120 of 1977). The available information is given in Appendix 4 to STCN, which also includes an example of the price structure of petrol in mid-1989.

The taxes on petrol and diesel comprise five elements, viz. the sales tax (set by the Windhoek administration and currently 10 %), the above-mentioned levy on petrol and diesel, customs duties, the Equilization Fuel Fund levy and the Central Energy Fund levy. The latter three of these levies are currently set by South Africa and are also paid into South African funds. The customs duties are, however, in principle

returned to Namibia, as the country is treated as an implicit member of the Southern African Customs Union (SACU). The Central Energy Fund is, *inter alia*, used to provide monies for the National Road Safety Council (NRSC) of South Africa and the Multilateral Motor Vehicle Accidents Fund for third party insurance, while the purpose of the Equilization Fund, *inter alia*, is to compensate the South African government for the losses incurred by selling oil to oil companies at world market prices, as the actual prices are higher.

With independence there will be a need to review the current tax structure, primarily as the roles of the Central Energy and Equilization Funds can be expected to be phased out. Thus, Namibia has already taken over the functions of the NRSC, and is likely to want to establish its own fund for third party insurance (see Chapter 3 of STCN). After independence, Namibia can furthermore be expected to be able to purchase petroleum products directly on the world market, so that there will be no scope for the imposition of a levy for the Equalization Fund by South Africa.

The report of the Advisory Committee on Transport Services (ACTS) reviewed the structure of the road taxes from an economic point of view in the mid-80s and concluded that there was a need for substantial increases; the taxes viewed as the road user charges, defined as the taxes related to the cost of constructing and maintaining roads, were identified as the annual vehicle licence fees and the fuel levy. The ACTS recommended that the former be used to supplement the latter to ensure that each type of vehicle is charged approximately in relation to its contribution to road construction and maintenance costs. DOT subsequently commissioned a consultant to review the structure of the licence fees in view of this recommendation. The study was completed in November 1989.

The levy on fuel (which only applies to vehicles on public roads) is imposed on petrol and diesel and is believed to be about 22 cents/litre at present (mid-1989). In spite of recent increases in the fuel level, indications are that the present road user charges are still low, at least for heavy vehicles. According to a recent study on road maintenance and construction costs associated with the operation of heavy goods vehicles carried out in the member states of the Preferential Trade Area (PTA), the cost for a fully laden vehicle amounted to at least USD 2.5 per 10 km in 1988 prices (R 5.6 at USD 1 = R 2.25). Currently such a vehicle only generates about 1 Rand per 10 km in Namibia on account of the fuel levy. If all the taxes on diesel are considered, the revenue is about R 2.25 per 10 km.

There is every reason to believe that Namibia for several years to come will see a very tight financial situation (cf. Appendix 2 of STCN). While undertaking the study on road taxation, it is therefore proposed that the question of earmarking the taxes in respect of road user costs for road construction and/or maintenance purposes also be assessed. Earmarked taxes are no panacea to ensure on optimal allocation of funds to and use of money in the road sector. Experience from in particular Africa, but also from many other countries, shows on the other hand that tight public finances often tend to have stronger effects on appropriations for roads than on other sectors. While the short-term effects thereof are often difficult to perceive, the medium to long-term effects are in the form of extremely high costs to the entire national economy.

Against this background, it is proposed that the study should review — on a worldwide basis — the experience of operating a road fund by means of earmarked taxes, including the mode of operation of such a fund in Namibia, if it is concluded that earmarked taxation would be beneficial.

The Technical Assistance

The terms of reference for the study would have to be formulated against the background of other interrelated studies that can be envisaged to be executed after independence, e.g. to review the fiscal situation and the structure of taxes, as well as work to disentangle the legal systems in the fields affecting road taxation. There is also a need for taking into account the policies to be pursued by independent Namibia in the field of taxation, in particular as concerns the distinction between taxes for purely fiscal purposes and for charging users. In addition, new policies in respect of third party insurance will have to be considered when executing the proposed study.

The proposed study is envisaged to cover:

- an analysis of future requirements for maintaining the existing road capital;
- an analysis of the road user costs for different vehicles and on different roads;
- a review of accident and environmental costs in road traffic and the need to reflect these cost elements in the road user charges;
- an anlysis of the present road taxation system and alternative systems;
- review of alternative ways of charging for road user costs;
- proposals for structure, level and methods of charging to be supported by economic analysis; and
- review of the need for earmarked funds for road maintenance and/or construction, including possible proposals for setting up of a road fund with details about mode of operation, etc.

Cost and Implementation

To undertake the study, a consultancy input of about 15 man-months would be required. The team would include one road engineer with experience in road cost analysis and techniques for charging road users, one planner/institutional expert with experience in the operations of earmarked funds in the public sector, in particular the roads sub-sector, and one transport economist with experience in developing charging systems for external effects and and to carry out economic analysis of alternative systems for road user charges, etc. The total cost of the project is estimated at USD 0.4 million.

The consultant should make use of available study material as far as possible, including the recently completed study which was commissioned by DOT. It is possible that a review of this study will enable a reduction to be made of the inputs envisaged to be required, as indicated above.

The study is urgent and should be initiated as soon as possible after independence (priority 1).

Project D-GM-2: Study on Roads in Kavango and Caprivi

Description

The purpose of the study would be to examine the economic

viability, and where required, carry out preliminary design of the building of the following roads to bitumen standard:

- Rundu (Takwasa) to Bagani, 151 km;
- Rundu towards Nkurenkuru, 8 km;
- Bagani to Kongola, 191 km; and
- Katima Mulilo to Ngoma, 54 km.

Background to and Need for the Project

Rundu (Takwasa) to Bagani

Detailed design including tender documents has been prepared for the whole section. The construction of the first section, 53 km, from Rundu to Takwasa was completed during 1988. The new road follows a new alignment, in general located 4-5 km south of the old road, which runs parallel with Okavango River. The new road primarily serves the long distance traffic while the settlements along the river are served by the old road. The villages and fields are found close to the river because of the access to water, and also the soil close to the river is better suited for cultivation of crops and cattle breeding than soils further away from the river.

The extension from Takwasa to Bagani is also proposed by DOT to be constructed to the south of the existing road. Traffic on the existing road is hindered by cattle crossing the road on its way from the fields to the waterpoints by the river and back, and also by pedestrians and other slow moving traffic, e.g. ox carts. The traffic is in the order of 100-200 vpd 50 km west of Rundu.

The construction cost has been estimated at about USD 20 million, including supervision. Construction is envisaged to be split into three contracts, with each construction period lasting 24-30 months. The first contract would include the road section to be described in the sequel, the cost of which is included in the above estimate.

Rundu towards Nkurenkuru

This 8-km long section consists of the western approach to Rundu. The traffic along this stretch of road has incresed considerably, from around 300 vpd in 1985 to 535 vpd in 1988; about 20 % are heavy vehicles. There are many settlements and small shops along the road which makes the road dangerous and prone to accidents. Due to the heavy traffic, the road is also costly to maintain. The road is likely to develop in to a major artery to Ovamboland in the future.

DOT has selected a new alignment further away from the river. According to DOT, the width of the required road reserve, 60 m, makes it difficult to upgrade the existing road as settlements can now be found within this width. Consultants are currently preparing detailed design, which is expected to be ready by the end of FY 1989/90.

Bagani - Kongola

The existing road, which traverses the Caprivi strip, is a well maintained good gravel road and appears to be structurally strong. It passes through flat terrain with sparse vegetation. Western Caprivi is a game park and is therefore uninhabited. Due to the flat terrain, the existing road has a straight vertical and horizontal alignment and is normally built up on a low embankment about 0.4 - 0.5 m high without any major structures. During the wet season there are sometimes drainage problems.

The existing bridge over the Okavango River east of Bagani is a high level, single lane bridge, 5.50 m between kerbs, with 3 spans each 50 m. The bridge is in good condition but the loading capacity may be inadequate. The structure at the crossing of Kwando River consists of four large Armco metal pipe-arch culverts (height approx. 4 m). The road embankment slopes at the culverts are well protected by concrete slabs and gabions designed to stand temporary overtoppings.

There is a lack of wearing course material for regravelling. Material has to be hauled over long distances. The same problem will be encountered if the road is reconstructed to bitumen surface standard. It may be possible to locate natural sub-base material to an acceptable standard, but base material will most probably have to be hauled from the ends of the road section, i.e. from the Bagani and Kongola areas. The material in the area is calcrete and lacks strength. Surfacing aggregates can also be obtained at Bagani and Kongola.

The other main problem is water for construction. During the construction of the road, a pipeline was laid, which is now in disrepair. Water will have to be obtained from the Okavango and Kwando rivers and if possible from drilled holes at suitable intervals, hauled or piped to the construction sites.

The traffic on the road section is about 50 - 100 vpd. No design for an upgrading of the road to bitumen standard has been carried out. The construction of the section is estimated at about USD 20 million.

Katima Mulilo - Ngoma

The existing road is a well maintained gravel road and has a good geometrical standard with the exception of a few places. Sections of the road pass over low-lying areas and are flooded during years of heavy rains, when these sections may become impassable.

From the border post at Ngoma towards the Namibia - Botswana border line, the road is a single lane 4-5 m high embankment. On the Namibian side there is a single lane bridge and a structure consisting of four large Armco metal pipe culverts. Over the Chobe River, which marks the border, there is a second bridge with maintenance responsibilities shared between the two countries. The bridges appear to be in good condition and able to stand increased traffic. The rather long approach embankment over the Chobe delta is narrow and only one meeting place is provided. Increased traffic may require additional meeting places. The Armco culverts are badly corrugated and need repair or replacement.

The traffic varies between about 415 vpd close to Katima Mulilo to about 95 vpd between Bukalo and Ngoma. About 10-15 heavy goods vehicles cross the border every day.

Reconstruction of the first 12 km from Katima Mulilo commenced during 1989. For the remaining section (54 km), the new alignment has been studied but no proper design prepared. It is expected that only limited sections will have to be realigned. Road building material is very difficult to obtain. Most pavement materials have to be hauled over long distances. Water is, however, not a problem in this area.

Feasibilty Study

There is a need to undertake feasibility studies of all the four

components. The objective would be to analyse the economic viability and to recommend an optimum programme with regard to choice of improvement alternative, time schedule, etc. For the Takwasa to Bagani section, there is a need to review the design which has already been prepared, including the proper alignment in light of the feasibility study and recommend modifications where necessary. As part of the study, the loading capacity of the bridge across the Okavango River should be examined.

Special attention would be paid to road building materials, and an analysis of the possibility of using locally available materials is of great importance. Alternative methods using substandard materials would be investigated and evaluated. Similarly, the study would address the problem of constuction water. Alternative methods of construction would be reviewed.

The possibility to reconstruct the gravel roads using low-cost techniques, which make use of the existing road structure and the gravel material on the road as a base for the bitumen surfacing, would be investigated and evaluated. This kind of technique could be feasible as a staged construction on sections with low volume traffic. Considerable research has been done in Namibia on low-cost roads (cf. ref. 15).

Costs and Implementation

The duration of the feasibility study is estimated at 8-10 months. The team carrying out the study would include the following specialists: transport economist, road and traffic engineer, soils and materials engineer, drainage engineer and regional development expert. It is expected that a total input of approximately 20 man-months would be required at a total cost of USD 0.3 million. The project has priority 1.

Project D-GM-3: Master Plan for Feeder Roads in Ovamboland

Description

The project would provide consultancy services for preparing a master plan for feeder roads in Ovamboland.

Background to and Need for the Project

Ovamboland is situated in northern Namibia bordering Angola. The district, covering an area of 51 800 km², is the most densely populated part of Namibia, accommodating about half the country's population. Population estimates vary from 600 000 to over 700 000.

Virtually the whole of Ovamboland is flat, sandy country almost entirely without stone, and with vegetation varying from sparse grasslands through small-shrub savannahs to dry-forest/acacia savannahs and mopane tree/shrub savannahs. Its inhabitants rely on a network of natural, shallow watercourses, called Oshanas, which fill with water during the rainy season, and owing to the impermeable sub-strata, the water is retained for long periods. Fish are caught in the Oshanas and a type of water onion is harvested.

Stock-farming, mainly cattle and goats, is commonly practised and the people cultivate millet, maize, pumpkins, beans and melons. Oshakati is the commercial centre, and also has a light industrial area and large wholesaling establishments providing goods for the more than 6 000 "cuca" shops or small retail outlets in Ovamboland. Ongwediva, located near Oshakati, is the educational centre.

The existing road network in Ovamboland includes a total of 1 281 km of proclaimed roads of which 437 km are bitumen surfaced. A further 698 km have been proclaimed but have not yet been constructed. Two major roads traverse Ovamboland; the trunk road from Tsumeb via Ondangwa, the capital of the district, to the Angolan border at Oshikango and the road from Ondangwa to Ruacana, the location of a gigantic hydro-electric scheme on the border with Angola. The bitumen roads are well maintained, while the district or feeder roads are of varying standards and state of maintenance.

On the whole there is a shortage of feeder roads and Ovamboland is also underserved in comparison with other parts of the country (cf. Section 5.2 of STCN). As the agricultural potential of the district is underdeveloped, it can be expected that the government will give high priority to the development of this sector after independence. This will also require extension of the feeder road network.

The Master Plan

It is anticipated that studies will be initiated after independence focusing on the socio-economic development of Ovamboland. The result of these studies will be an essential input into the proposed master plan and there is therefore a need for close co-ordination and to formulate terms of reference on the basis of the scope of these other exercises. The master plan would be expected to cover two phases, as follows:

The first phase would include an inventory of all existing roads as well as an identification of all other existing facilities, such as schools, hospitals, clinics, business centres, industries, agricultural areas, etc. Population distribution into geographical areas, population densities, age and skills would be identified as well as the socio-economic situation and needs, unless such data are available through other studies. The identification phase would also include an inventory of planned developments under the auspices of other departments and administrations.

The road inventory would include traffic surveys and would identify the geometrical standards of the roads, road surface conditions, drainage facilities and make an overall assessment of the standard of construction and maintenance. The availability and quality of road building material would be assessed as well as road construction and maintenance costs.

The present organisation for planning, construction and maintenance available for development of roads in this specific area would be identified and would include information on technical and administrative staff, equipment, workshops, training facilities, etc.

An intermediate report would be presented summarising all data collected during the inventory phase. The report would also include proposals on the intended methodology for transforming the data into future transport needs. Furthermore, a classification system for the roads to be included in the master plan would be proposed for dividing the roads into various categories depending on function, traffic, terrain, etc. The design standards of the proposed road categories would be outlined.

The analysis phase would include an assessment of future traffic on existing and future roads, based on the development potential of various sectors. A tentative road im-

provement plan would be identified, and investment and maintenance costs calculated.

Improvement alternatives related to various design standards, e.g. the choice of gravel or bitumen surfaced roads, and low-cost alternatives involving labour intensive techniques in construction and maintenance would be assessed and compared with the normal machine-intensive technique (cf. ref. 15).

Cost-benefit analyses would be made for each improvement alternative. A programme for the implementation of the master plan would be elaborated, phased in time to match other development programmes in the area. The road improvement projects would be ranked based on their economic viability and other non-quantifiable benefits.

Attention would also be paid to the future maintenance organisation of the rural road network in Ovamboland. Current structures and practices would be evaluated, and if warranted proposals would be made for new arrangements. Plans for manpower training and development would be elaborated.

The study would also include improvements to the primary road network, especially roads connecting the major centres in Ovamboland to major centres of neighbouring districts (e.g. Oshakati-Opuwa, Ondangwa-Rundu).

Costs and Implementation

The duration of the study is estimated at 12 months. The consultant's team would comprise the following experts: regional development economist, transport economist, agricultural expert, road engineer, traffic engineer, and soils and material engineer.

It is expected that a total input of 25 man-months will be required at a total cost of USD 1.0 million. The project is proposed for implementation soon after independence (priority 1). The master plan will have to be developed in close liaison with the local administration.

Project D-GM-4: Civil Aviation Experts

Description

The project would provide the Department of Transport (DOT) with 3 civil aviation experts over a period of 3 to 4 years (i) in order to ensure that independent Namibia will be able to perform essential functions related to international co-operation, the regulation of air transport, aviation safety and air navigation, (ii) and to assist with the establishment of a self-sustained unit within the DOT capable of performing all the duties normally to be performed by a government in the field of civil aviation.

Background to and Need for the Project

The Department of Transport was established on 1 July, 1980 with the objective of administrating "transport matters and the establishment of effective road and air connections for the entire territory". It then also assumed the responsibility for those functions in the field of civil aviation which two years earlier had been transferred from the South African Department of Transport to the Windhoek administration, as well as the administration of the corresponding parts of the South African civil aviation legislation.

Up to independence, the division of work in the field of civil aviation between Windhoek and Pretoria has been as follows:

(i) All international co-operation, i.e. bilateral air service agreements, concessions for international flights and ICAO matters are the responsibility of Pretoria.

(ii) Economic regulation of domestic and international flights is the responsibility of Pretoria.

(iii) Registration of Namibian aircraft is done in the South African registry; there is no separate registry for Namibia.

(iv) Standard-setting for aviation safety and services is performed in Pretoria. All standards are the same as in South Africa.

(v) Licencing of aviation personnel, aircraft, airfields, airlines, maintenance and repair shops, etc. are the responsibility of South Africa.

(vi) Inspection of licenced airfields, operators and personnel is to be carried out by DOT, but is in effect partially done by Pretoria because of staff shortages.

(vii) Incident and accident investigations are the responsibility of and are performed by Pretoria.

(viii) Calculation and approval of approach and departure procedures are performed by Pretoria.

(ix) Editing and printing of Aeronautical Information Publication (AIP) and aeronautical maps and flight calibration of navigational aids are performed by Pretoria.

(x) Formal training of air traffic controllers and advanced training of avionicians, technicians and operations specialists, etc. are done in South Africa.

(xi) Overall planning of the civil aviation sector, e.g. of airfields and air navigation services is the responsibility of DOT but is lacking because of shortage of personnel.

(xii) All other functions are performed by DOT.

There is no separate unit within DOT responsible for all the civil aviation functions currently performed. The Directorate Roads and the Directorate Mechanical are involved in the planning, construction and maintenance of airports and airfields. A separate department, the Department of Civic Affairs and Manpower, has overall responsibility for the construction and maintenance (including utilities) of all government buildings, including those at airports and airfields. The Directorate Transport Regulation and Auxiliary Services has 3 sub-divisions reponsible for the administration of government airports and airfields, aviation safety and meteorological services. In general, there is a grave shortage of staff at all levels within the DOT to perform the civil aviation functions.

After independence, the civil aviation administration within the DOT will have to be expanded and its competence in several fields strengthened. This is envisaged to be done in several steps. The first step is proposed to comprise the following (the subsequent steps will have to be defined at a later point in time):

- the enactment of comprehensive Namibian civil aviation laws. Laws are currently being drafted by the DOT and it is envisaged that the South African Administrator-General will proclaim these laws before independence in order to allow them to be made effective by the first government of independent Namibia;

- the establishment of a separate unit — a directorate — with a director reporting to the Secretary for Transport. The unit will have three divisions for Air Navigation Services, Aviation Safety and Air Transport. In addition, it is envisaged that Meteorological Services will belong to this new directorate;
- the retention of the units involved in aviation matters and attached to the Directorates Roads and Mechanical and with their current functions;
- the target that the new directorate will possess the *basic* competence and facilities required to perform functions (i) to (vii), as described above, within one year after independence;
- the recruitment of three civil aviation experts with technical assistance from a donor to initially serve as Director of Civil Aviation, chief of the Aviation Safety Division and chief of the Air Transport Division;
- the recruitment of staff to fill all vacancies in the present establishment for the aviation related units in DOT; and
- the development of on-the-job training and formal training programmes to ensure that recruited staff and staff designated to take over as director and chiefs acquire the basic - required — competence within a specified time period.

Technical Assistance

The donor-financed component of the above programme for the first step comprises the three civil aviation experts. It is also envisaged that some funds will be made available to these experts by the donor to make it possible to recruit consultants for short assignments and to organise training abroad. In addition, it is envisaged that assistance in respect of the training component will be rendered by the manpower expert to be provided through Project D-GM-6. This expert will have the overall reponsibility for identifying training needs, the formulation of training policies and the planning of training programmes, in co-operation with the unit concerned within DOT and other government departments (notably the Central Personnel Institution), but all the preparatory work for civil aviation staff will be done within the Civil Aviation Directorate.

The technical assistance team is proposed to comprise:

(i) A Director of Civil Aviation. He is proposed to have a background as an executive in a civil aviation administration, and specifically in aviation policy and strategic planning of the ground segment of civil aviation, and with experience in airfield and air navigation plans. He would be recruited on a priority basis as he would be involved in the detailed planning of the staff establishment as well as the recruitment of the other two experts, and as far as possible in the recruitment of the other civil aviation staff. He would be charged with making the new directorate functional according to the above targets and to train the director designate, envisaged to hold the position of deputy director, so that he can take over in 3 to 4 years time. In addition, he would be responsible for the manpower development of the directorate, policy formulation (including the definition of the future evolution of the directorate), budgets and co-ordination with other directorates and departments. He would also be responsible for providing advice to the Air Navigation Services Division and be involved in the formulation of an air navigation plan for Namibia.

(ii) The Chief of the Aviation Safety Division. This person would have a background in a senior position in a corresponding unit of a civil aviation administration of another country. He would be responsible for establishing a registry for Namibian civil aircraft and a licencing system for personnel etc., establishing flight safety standards, including procedures for inspections, and formulating procedures for accident and incident investigations. He would train the person designated as the future chief, to be able to take over after a period of about 3 years.

(iii) The Chief of the Air Transport Division. This person would have a background in a senior position in a corresponding unit of a civil aviation administration or ministry of another country. He would have extensive experience in the economic regulation of air services through air services agreements and licences, as well as experience in air law and the international conventions underlying air laws. He would also have experience in the planning of the aviation sector and the formulation of aviation policies. He would train the person designated asthe future chief, to be able to take over after a period of about 3 years.

All three experts are assumed to be available in an advisory capacity, on a part time basis, for some time (up to 2 years) after they have stepped back from their line positions.

Cost Estimate

The technical assistance is estimated to cost USD 2.5 million. It has priority 1 and should be initiated as soon as possible.

Project D-GM-5: Maritime Affairs Experts

Description

The project would provide the Department of Transport (DOT) with 2 experts in maritime affairs over a period of 3 to 5 years (i) in order to ensure that independent Namibia will be able to perform essential functions related to international co-operation, the regulation of shipping, maritime safety and pollution prevention, and maritime navigation and telecommunications, and (ii) to assist with the establishment of a self-sustained unit within the DOT capable of performing the basic duties to be performed by a government in the field of maritime affairs.

Background to and Need for the Project

Up until independence, almost every aspect related to maritime affairs of relevance to Namibia is being administrated by the South African Department of Transport. All laws are South African, and only minor questions have so far required the involvement of the DOT in Windhoek. TransNamib Limited (TNL), a government-owned corporation responsible for the operations of the railway, and the putative national carrier, Namib Air, operate seven lighthouses along the coast as well as pilotage in the port of Lüderitz. This port, which is the only port over which Namibia will be able to exercise full control at independence, is also operated by TNL. Traffic in Lüderitz is insignificant, about 15,000 tonnes a year. The number of boats which can be viewed as Namibian is very limited and includes only fishing vessels or vessels of a similar size.

The lighthouse in Walvis Bay is operated by the South African Transport Services, the port operator. Maritime

radio telecommunications are provided from Walvis Bay, and are operated by the South African Department of Posts and Telecommunications, while a repeater station in Lüderitz is maintained by the Namibian Department of Posts and Telecommunications (DOPAT). Two vessels are employed by the Directorate of Sea Fisheries in the Windhoek Department of Agriculture and Nature Conservation for fishery protection services. No pollution control and rescue services are provided on the coast.

After independence, it will be necessary to establish a unit to be concerned with the maritime affairs sector, in view of the fact that the Namibian coastline is more than 1 350 km long and its waters are deemed to be one of the richest fishing grounds in the world. Competence in maritime affairs is also imperative in view of the South African claim to the Walvis Bay enclave, the only deepwater port on the Namibian coast, as well as to 14 small islands — the Penguin Islands — strung along the coast from south of Walvis Bay to the mouth of the Orange River. Walvis Bay and the Penguin Islands are currently under South African administration, and South Africa furthermore claims 200 (nautical) mile fishing zones in the waters extending from Walvis Bay and the Penguin Islands, all in all constituting about 14% of the Namibian offshore waters within the 200 mile limit.

The establishment of competence in maritime affairs is envisaged to be done in several steps. The first step is proposed to comprise the following (subsequent steps will have to be defined at a later point in time):

- the enactment of comprehensive Namibian maritime affairs laws. Laws are currently being drafted by the DOT and it is envisaged that the South African Administrator-General will proclaim these laws before independence in order to allow them to be made effective by the first government of independent Namibia;
- the establishment of a separate unit — a directorate in the Department of Transport — with a director reporting to the Secretary for Transport. The unit will have two divisions for (i) Maritime Safety and Pollution Prevention, and (ii) International Relations and Maritime Law;
- TNL is assumed to continue being responsible for navigational aids, DOPAT for maritime telecommunications and the Directorate for Sea Fisheries for fishery protection services;
- the target that the new directorate will possess the *basic* competence and facilities required to perform the functions listed below, within one year after independence:

  * sea worthiness certification and registration of vessels
  * personnel licencing and registration
  * pollution prevention and control
  * search and rescue services
  * accident investigation
  * international liaison and co-operation
  * maritime law administration

  It is assumed that the Directorate will be able to hire services whenever they are available from the private sector, e.g. from classification societies;
- the recruitment of two maritime affairs experts with technical assistance from a donor to initially serve as Director of Maritime Affairs and chief of the International Relations and Maritime Law Division;
- the recruitment of staff to fill about 5 to 7 other professional posts proposed to be part of the initial establishment of the Directorate of Maritime Affairs in DOT; and
- the development of on-the-job training and formal training programmes to ensure that the recruited staff and staff designated to take over as director and chiefs acquire the basic competence required within a specified time period.

Technical Assistance

The donor-financed component of the above programme for the first step comprises the two maritime affairs experts. It is also envisaged that some funds will be made available to these experts by the donor to make it possible to recruit consultants for short assignments and to organise training abroad. In addition, it is envisaged that assistance in respect of the training component will be rendered by the manpower expert to be provided through Project D-GM-6. This expert will have the overall reponsibility for identifying training needs, the formulation of training policies and the planning of training programmes, in co-operation with the unit concerned within DOT and other government departments (notably the Central Personnel Institution). However, all the preparatory work for maritime affairs staff will be done within the Maritime Affairs Directorate.

The technical assistance team is proposed to comprise:

(i) A Director of Maritime Affairs. He is proposed to have a background as an executive in a maritime affairs administration, and specifically in maritime safety aspects. He should preferably be a master mariner. He would be recruited on a priority basis as he would be involved in the detailed planning of the staff establishment, as well as the recruitment of the other expert, and as far as possible in the recruitment of the other maritime affairs staff. He would be charged with making the new directorate functional according to the above targets and to train the director designate, envisaged to hold the position of deputy director as well as chief of the Maritime Safety and Pollution Prevention Division, so that he can take over in 3 to 5 years time. In addition, he would be responsible for the manpower development of the directorate, policy formulation (including the definition of the future evolution of the directorate), budgets and co-ordination with other directorates and departments. He would also be responsible for providing advice to the Maritime Safety and Pollution Prevention Division and be involved in the establishment of a registry for Namibian ships and personnel, and the development of systems and procedures for certification and inspection of ships and personnel and accident investigation.

(ii) The Chief of the International Relations and Maritime Law Division. This person should have a background in a senior position in a corresponding unit of a maritime affairs administration or ministry of some other country and extensive experience in maritime laws and the international conventions underlying maritime affairs legislation. He should preferably also have experience in the planning of the maritime sector and the formulation of maritime policies. He would be expected to train the person designated as the future chief, to be able to take over after a period of about 3 years.

Both experts are assumed to be available in an advisory

capacity, on a part time basis, for some time (up to 2 years) after they have stepped back from their line positions.

Cost Estimate

The technical assistance is estimated to cost USD 1.5 million. It has priority 1.

Project D-GM-6: Technical Assistance to the Department of Transport

Description

The technical assistance is envisaged to comprise two experts, one transport economist and one manpower expert for a period of 3 to 5 years.

Background to and Need for the Project

The Department of Transport (DOT) currently operates all the functions normally performed by a ministry or a government administration in the fields of roads, road traffic, road transport and meteorology. It performs vital functions in civil aviation, including airports, but its mandate and capacity in this field are subject to limitations. Maritime affairs is entirely under the control of Pretoria, and DOT in effect has no day-to-day responsibilities in respect of ports, railways or lighthouses, which are operated by a government-owned corporation, TransNamib Limited (TNL). TNL also operates the putative national carrier, Namib Air. DOT's role in respect of the domain of TNL activites is limited to major policy issues involving legislative changes.

There is no unit responsible for policy formulation or overall planning of the transport sector, and there are no policy analysts, transport planners or economists in the employ of the DOT.

While the overall responsibility for personnel administration and manpower training and development falls under a different department, the Central Personnel Institution, the DOT executes a number of functional training programmes. The Roads Directorate trains on a regular basis operators, assistants, foremen and roads superintendents. The Mechanical Directorate trains mechanics and other artisans at its main workshop in Windhoek and the Traffic Law Enforcement Sub-division runs a three month course for the Diploma for Traffic Officers. Technicians are only trained on-the-job, and are sent to South Africa to attend courses. All other more specialised formal training, for example in civil aviation, avionicians, surveyors, etc., also relies on outside — formal — training, which is mostly carried out in South Africa.

There is no single unit in the DOT responsible for manpower training and development; these activities are either handled by the Central Personnel Institution or by the sub-divisions directly concerned. Personnel administration is the responsibility of the Personnel Sub-division in the Directorate Transport Regulation and Auxiliary Services.

After independence, the DOT will have to assume additional responsibilities, notably in the fields of civil aviation and maritime affairs, which are now handled by the South African Department of Transport in Pretoria. This will involve the recruitment and, in particular, the training of new staff. In addition, the DOT can be assumed to come to play a central role in the transport sector, including the formulation of transport policies and investment plans, which also means that it will have to process matters related to the regulation of TNL. The DOT will furthermore have to shoulder the responsibility of maintaining liaison with donor agencies regarding assistance to the sector, and to ensure that such assistance is in agreement with established policies and plans. In a somewhat longer perspective, it is possible that the scope of activities of the DOT will be extended to cover the regulatory, policy and monitoring functions in respect of communications, provided the present Department of Posts and Telecommunications is transformed into a government-owned corporation(cf. Project T-GM-1).

DOT will furthermore have to face new challenges as regards manpower training and development at a more general level. It can thus be expected that the DOT will be able to recruit a number of Namibians trained abroad who have returned after commencement of the independence process or who will return in the near future. These returnees have skills badly needed by the DOT, but some of them will require additional training or coaching in order to match the requirements of available vacancies. There is also a risk that staff turnover in the next few years will be higher on account of the independence process.

In view of these changes, it is envisaged that there will have to be a number of institutional changes in the structure of the DOT soon after independence, to be seen as a first step in the transformation of the DOT into a fully-fledged ministry. These first changes are assumed to involve:

(i) The establishment of new Directorates for Civil Aviation (see Project D-GM-4) and Maritime Affairs (see Project D-GM-5).

(ii) The creation of a new policy formulation and planning unit to be part of a proposed new Planning Directorate. The Policy and Planning unit would have all in all 3 to 4 officers, to be concerned with (a) policies, including liaison with other departments, institutions and donors, (b) investment planning, (c) budgeting, (d) management information systems and (e) statistics.

(iii) The creation of a new personnel unit, to take over the tasks of the Personnel sub-division, but also to be responsible for the formulation of training policies and overall co-ordination of training programmes and manpower development within the DOT, under the auspices of the Central Personnel Institution. It is envisaged that the present training programmes would remain with the units currently responsible, while the new Personnel unit would be first and foremost involved in identifying new needs as well as new possibilities for training, when such training has to be executed abroad, including establishing long-term connections with suitable training institutions abroad. The Personnel unit would, in addition to the staff of the present Personnel Sub-division, comprise about two more officers, including the proposed head of division.

Technical Assistance

The donor-financed component of the above programme comprises the transport economist and the manpower expert envisaged to serve as heads of the proposed new Policy and Planning unit and the Personnel unit, respectively. In addition, it is proposed that some funds be made available to these experts by the donor to make it possible to recruit consultants for short assignments.

The transport economist should preferably hold a senior position in a policy and/or planning unit of a ministry or a

government administration of some other country and/or shall have experience in dealing with donor agencies. He is envisaged to be responsible for establishing the new unit, formulating systems and procedures, and for recruiting and training staff. It is also envisaged that one person would be designated as the future chief of the unit to be trained to take over after about 3 years.

The manpower expert should preferably have experience in handling manpower development issues of a complex nature, preferably in a specialised field such as civil aviation or maritime affairs and from a developing country in Africa. He will focus on the needs of the civil aviation and maritime affairs directorates, as well as those of the returnees, but he will also map out other gaps as regards manpower training and development, in particular with the purpose of advancing the careers of black Namibians, and devise strategies for how to tackle these gaps. He will be expected to liaise closely with other concerned government departments and other institutions and organisations involved in training in Namibia to ensure beneficial co-operation and maximum use of available resources in order to promote the development of the type of skills required by the DOT in the medium to long-term perspective.

Both experts are assumed to be able to serve in an advisory capacity, on a part-time basis, for some time (up to 2 years) after they have stepped back from their line positions.

Cost Estimate

The technical assistance is estimated at USD 1.5 million. It has priority 1.

ANNEX 2. PROJECT DESCRIPTIONS; TRANSNAMIB LIMITED

RAILWAY PROJECTS

Project R-CE-1: Track Repair and Upgrading - Seeheim to Lüderitz Line

Description

The project has been divided into two phases. The first phase covers a period of up to 12 months and the second phase the period thereafter.

The activities which have been identified for completion in the first phase will ensure the necessary acceleration of the ongoing upgrading programme by providing manpower and equipment to replace the weakest sections of the track and formation. A reception/despatch yard will be constructed at Lüderitz and the turntable overhauled.

During the second phase, all outstanding rerailing, resleepering and ballasting will be completed and bridges strengthened in order to permit the passage of 16.5 tonne axle load wagons.

Background to and Need for the Project

This project is part of a package of projects, which in addition includes projects R-CE-2, R-CE-3, R-CE-4, R-ST-1, P-CE-1, P-CE-2, P-ME-1 and P-ME-2. The purposes of the package are (i) to upgrade the port of Lüderitz to transform it into a commercial port able to serve primarily coastal traffic with neighbouring states, and (ii) to upgrade the branch railway line between Seeheim and the port of Lüderitz.

The Seeheim to Lüderitz line is constructed with a mixture of rail sections ranging from 18.26 kg/m to 48 kg/m, and a variety of steel, concrete and timber sleepers.

A rehabilitation project is in hand utilising materials recovered from the main line during the upgrading project. Much of the recovered material is laid out alongside the track and a TransNamib Ltd (TNL) relaying gang is assigned to the line. The section from Seeheim to Aus is of a fair standard, suitable for 15 tonne axle load traffic at speeds of up to 50 km/h. From Aus to Lüderitz axle loads are restricted to a maximum of 11.5 tonnes and line speeds to 30 km/h in many sections.

After the repair and upgrading project has been completed, the line will be of a good branch line standard, enabling increased use to be made of the port of Lüderitz.

Project Components and Implementation

First phase (12 months):

- supply new 48 kg/m rails for main line relaying (approx. 1 920 tonnes = 40 km of rail);
- transport and lay second-hand rails and sleepers ex stores and main line relaying (approx. 55 km.);
- supply and lay ballast ex Keetmanshoop (100 000 cu.m.);
- weld short rails into 36 or 72 m lengths (2 500 welds);
- supply second-hand materials and construct a reception/despatch yard at "Oil Sites" (approx. 1.5 km of track);
- overhaul turntable at Lüderitz; and
- supply transport and track maintenance plant:
  1 grader
  1 bulldozer
  4 lorries
  small tools.
- transport and lay second hand rails and sleepers ex stores and main line relaying (approx. 30 km);

Second phase:

- supply and lay ballast ex Keetmanshoop and new quarry (135 000 cu.m.);
- weld rails into 36 or 72 m lengths (5 000 welds);
- extend reception/despatch sidings at Lüderitz (0.5 km of track); and
- strengthen all bridges culverts and formation to support 16.5 t axle loads.

Project Cost

The project costs are estimated to be as follows

	USD million
First phase	6.0
Second phase	3.0
Total:	9.0

The project is contingent on projects R-CE-2 (Establishment of Quarry) and R-CE-4 (Bridge Strength Survey). It has priority 2. The project would be implemented by TNL.

Project R-CE-2: Establishment of Quarry - Seeheim to Lüderitz Line

Description

The project comprises the establishment of a ballast quarry in order to provide a supply of ballast for the upgrading of the Seeheim - Lüderitz line.

Background to and Need for the Project

At present ballast is provided for the southern region of the rail network from a commercial quarry at Keetmanshoop.

As less than half the Seeheim - Lüderitz line is ballasted (none on the section from Aus to Lüderitz), there is the need to provide approximately 253,000 cu.m. of ballast. A proportion of this will come from the Keetmanshoop quarry but as the distance to the western end of the line will cause disruption to traffic and will be expensive, it will be necessary to open a new quarry in the Aus-Lüderitz section.

Project Components

The project comprises the supply and installation of the following:

- one semi-mobile crushing plant capable of producing approximately 60,000 cu.m. of ballast a year;
- power plant, conveyors, screens;
- drills, compressors, loading shovels and dump trucks; and
- spare parts for two years' operation.

Project Cost and Implementation

The project cost is estimated to be USD 3.5 million. The project has priority 2.

Project R-CE-3: Realignment Study - Seeheim to Lüderitz Line

Description

The purpose of the project is to carry out a study to determine the possibility of realigning the section of the Seeheim - Lüderitz line between the stations of Rotkop and Oil Sites near Lüderitz in order to provide a route which is clear of moving sand dunes and has a more stable formation which will not be subject to washaways.

Background to and Need for the Project

The section of the Seeheim to Lüderitz line from Rotkop down to Lüderitz passes through an area of moving sand dunes, which frequently cross the track, and for the last 12 km follows the course of a dry river valley which is subject to flooding after periods of heavy rainfall. The existing formation is very weak and liable to collapse every time a flood occurs.

If an alternative route can be found it may be possible to justify the construction of a realigned section of track which will not be so subject to blockage and will be more secure in the rainy season.

The Study

The study should involve:

- using existing maps to establish the optimum route for the line from Rotkop to Lüderitz;
- survey of the route; and
- design of a realignment scheme and estimation of construction costs.

Study Costs and Implementation

The study cost is estimated to be USD 0.2 million and work should be commenced about 12 months after indepence (priority 2) in order to establish the viability or otherwise of a realignment if there is the requirement to make increased use of Lüderitz port.

Project R-CE-4: Bridge Strength Survey - Seeheim to Lüderitz Line

Description

The project is for the inspection and testing of all bridges on the Seeheim - Lüderitz branch line to ensure that they are strong enough to carry a 16.5 tonne axle loading. Repair, strengthening or replacement designs are to be prepared.

Background to and Need for the Project

The Seeheim - Lüderitz line is proposed to be upgraded to a good branch line standard. When completed, the track and formation will be able to support trains with 16.5 tonne axle loads.

There are 343 bridges and culverts on the line which may or may not be strong enough to carry the heavier trains. A survey is necessary to determine the strength and condition of each of the structures and to determine repair or replacement works that should be carried out to ensure that they are capable of carrying the increased loading.

The Study

The study would include:

- review of all bridge drawings and design documentation;
- inspection of all bridges and culverts;
- load testing of critical bridges;
- preparation of bridge reports; and
- design of repairs, strengthening or replacement works.

Project Cost and Implementation

The project is estimated to cost USD 0.1 million and should be completed in the medium term (priority 2).

Project R-ME-1: Locomotives

Description

The project provides for technical assistance to identify the least cost solution that will ensure that the TNL fleet of locomotives is adequate until the end of the 1990s.

Background to and Need for the Project

The existing fleet of TNL locomotives comprises 6 Class 32 (1475 Kw) locomotives manufactured by General Electric 1966 and 82 Class 33 (1605/1490 Kw) locomotives manufactured between 1968 and 1970. There are also 8 old locomotives available for cannibalisation for spare parts. This fleet is more than adequate for the present volume of traffic and TNL has therefore leased 12 units to SATS. On the other hand, the locomotives only have a further life of up to 8 to 10 years.

Three issues must be resolved prior to making a decision on the future policy for locomotives:

(i) How many of the present units can be economically re-engined or rebuilt to run for the next 10 to 15 years?

(ii) Is it economical to introduce locomotives with a higher hauling capacity than the present ones in order to reduce the need for double-heading and banking, and possibly the number of trains. Should an upgrading in power be considered for the locomotives proposed for re-building?

(iii) What is the likely need for tractive power in the next 15 years?

The Study

In order to provide TNL with a strategy for the future, the study must address the three issues identified above and provide recommendations and conclusions in respect of those issues. More specifically the study team would:

- inspect all locomotives and related documentation;
- review facilities for major rebuilding works in Namibia and in neighbouring countries;

- determine technical, operating and economic feasibility of using more powerful locomotives;
- assemble data on traffic estimates; and
- determine operating and maintenance costs under various scenarios.

On the basis of these data a strategy would be formulated, considering fully the economic and financial implications, on a life-cycle basis. The end result of the study is envisaged to be a detailed investment programme identifying the need for rebuilding, re-engining and/or the purchase of new locomotives.

Project Cost and Implementation

The study is recommended for implementation soon after independence, i.e. it has priority 1. The cost of the study is estimated to be USD 0.3 million.

Project R-ME-2: Workshop Facilities

Description

The project includes a location study and the construction of a workshop for the maintenance and repair of carriages and wagons, as well as the provision of additional laboratory facilities.

Background to and Need for the Project

In the past all major wagon and carriage repairs were carried out in South Africa. The present wagon repair facilities in Windhoek consist of a short portal frame shed with four tracks and with hydraulic jacks as the only lifting equipment. Wagons are therefore sent to South Africa for major repairs, the cost of which includes a charge of R 2 000/wagon for moving the wagon to and from the repair workshop. Carriage and wagon painting is carried out in an open area and is therefore only possible when the weather is favourable.

TNL have carried out a review of alternative locations for the siting of a new carriage and wagon maintenance workshop. This study identified the possibility of utilising wasted space in the existing workshops in Windhoek but this area could probably be better used for an expansion of the locomotive maintenance facilities. Further studies are required in order to determine the most economical location for this workshop, as there is also a potential to establish it elsewhere in the country.

The wagon fleet is in relatively good condition, but ongoing maintenance is essential if the high wagon availability figures are to be maintained.

The workshop laboratory does not have the necessary equipment to carry out water analyses and certain oil analyses. This work is currently done in South Africa.

Project Components

The project comprises the following components:

- identify the most suitable location for a new workshop;
- design and construct a carriage and wagon repair workshop;
- construct a paint shop;
- supply and install workshop equipment; and
- provide and install laboratory equipment, including an oil spectrometer.

Project Cost and Implementation

The project is estimated to cost USD 3.5 million and should be implemented prior to the need for major maintenance of rolling stock. The project has priority 2.

Project R-ST-1: Radio Control System on the Lüderitz Branch

Description

Radio survey of the Seeheim - Lüderitz line and the extension of the radio control system to cover the line.

Background to and Need for the Project

TNL has replaced the old token block system of train control on the main lines with a radio control system. The system operates to Keetmanshoop and will be extended to the southern border of Namibia by 1990.

At present there are so few trains operating on the Seeheim - Lüderitz line that the wooden staff system of train control is quite adequate. However, there is little flexibility inherent in the wooden staff system, and if traffic increases it will have the effect of limiting line capacity and hence restricting the development of the line. A simple, relatively cheap, form of radio control will be suitable for the line and it would therefore be logical to extend the system used on the main line to cover the Seeheim - Lüderitz branch.

Project Components

Project implementation would involve:

- radio survey of the line;
- supply and installation of a control console at Keetmanshoop; and
- supply and installation of radio masts, repeater equipment and radio receiver/transmitters at stations, on locomotives and on maintenance vehicles.

Project Cost and Implementation

The project is estimated to cost USD 0.3 million and should be implemented in the medium-term (priority 2).

Project R-GM-1: Railway Training Assistance

Description

This project provides for a review of the current training methods and the development of the existing training school and the apprentice training centres. In addition the project includes the training of instructors.

Background to and Need for the Project

The training centre at Gamams has sufficient capacity to accommodate 160 students and to train 230 students. This is an excellent centre for the training of local staff and potentially for providing training to staff from adjacent railway systems. Currently only a part of the school is used for training railway staff but the need for an increase in literacy and English language teaching will absorb any spare accommodation.

Additional training facilities are provided in the workshop area where on-the-job training is carried out.

The methods of teaching, language of instruction, recruitment of trainees, courses on offer, etc. are to be reviewed in order to ensure that they adequately meet TNL's require-

ments for artisans, mechanics, operators, clerks, etc. In particular, there is a need for developing further the methods of training to speed up the advancement of black Namibians. TNL has taken some initial steps in this direction, but there are substantial additional needs.

Assistance will also be required in the training of additional instructors and of the present instructors, as well as providing instructors for specialised areas, such as carriage and wagon maintenance.

Project Components

It is envisaged that the project would cover:

- review of the existing training facilities methods, etc;
- development of training plans, syllabi and teaching methods;
- technical assistance for training of students and instructors; and
- scholarships.

Project Cost and Implementation

The project should be carried out in two steps, the first of which being the training review. The purpose of the training review is to define the project concisely and to work out a total cost estimate.

The cost of the project will depend on the results of the training review, but has provisionally been estimated at USD 1.5 million. The project is urgent and has priority 1.

PORT PROJECTS

Project P-CE-1: Dredging at Lüderitz

Description

The project comprises maintenance dredging of existing dredged area at Lüderitz to regain existing levels as well as additional dredging to increase the capacity of the port.

Background to and Need for the Project

The access channel to the jetty, and turning areas around the jetty, were dredged when the jetty was constructed in 1968. It is understood that maintenance dredging has been carried out at intervals, but a recent survey has indicated that siltation has now reached an unacceptable level.

It is proposed that the material dredged from the harbour should be used to increase the area of the storage yard, so that a reasonable quantity of containers and general cargo could be stored within the port.

Dredging to -7.0 m (or -7.5 m if rock level permits) in an area at the head of the jetty would permit ro-ro vessels with straight ramps up to about 9 000 dwt to discharge on to the existing jetty.

Project Components

The project comprises:

- dredging approx 50 000 cu.m of fine material from existing dredged areas to regain previous dredged depth of -6.1 m. The fill would be placed in reclamation on the adjacent shoreline, and rock bunds would be required to contain the reclamation;
- deepening of dredged area at head of jetty to -7.0 m (or -7.5 m if rock level permits); and
- dredging to -1.5 m for new lighterage wharf (see Project P-CE-2).

Project Cost and Implementation

The dredging should be carried out as soon as possible, following international tendering (priority 1). The cost is estimated to be USD 1.0 million of which about 30 per cent would be for mobilisation and demobilisation of the dredger.

Project P-CE-2: Improvements to Lüderitz Port Area

Description

Surfacing of storage areas, construction of a ro-ro facility, construction of lighterage wharf and relaying of existing railway sidings.

Background to and Need for the Project

The existing land-side area of Lüderitz Port is covered by railway sidings, with little area available for the storage of containers and general cargo. The existing railway sidings should be rationalised and roads and storage areas formed.

At the present, time lighters are off-loaded at the main jetty. In order to free the main jetty to take coasters and ro-ro vessels a lighterage wharf would be constructed alongside the reclaimed area provided under Project P-CE-1. The construction of a fixed ro-ro ramp on the side of the existing jetty would permit use by coastal ro-ro vessels.

Project Components

The project would include

- re-lay existing railway sidings, construct roads and surface container storage area and new storage area;
- construct sheet piled ro-ro ramp on the side of the existing jetty;
- construct sheet piled lighterage wharf adjacent to new storage area; and
- structural survey and design check of the existing jetty.

Project Cost and Implementation

The works in this project should be constructed under a single local contract and be completed in the medium-term (priority 2)

The cost of this project is estimated to be:

	USD million
Re-laying railway sidings	0.10
Roads and surfaced areas	0.30
Ro-ro ramp	0.40
Lighterage wharf	0.60
Structural survey of jetty	0.10
Total:	1.50

Project P-ME-1: Marine Craft

Description

Provision of a new tug and four flat-top lighters.

Background to and Need for Project

At present, Lüderitz has one tug, a small harbour tug, and

five traditional lighters (which are not suitable for containers).

The existing tug is reaching the end of its service life, and a second tug would be useful for handling lighters. The provision of flat-top lighters would permit the handling of containers from all types of vessels.

Project Components

The project comprises:

- supply of one 900 hp tug; and
- four flat top barges 28 m x 7 x 1.5 m.

Project Cost and Implementation

The equipment should be provided at the same time as the new cargo handling equipment (project P-ME-2). The project has priority 2.

The cost is estimated to be:

	USD million
Tug	0.65
Four lighters	0.35
Total:	1.00

Project P-ME-2: Cargo Handling Equipment

Description

Provision of cargo handling equipment at Lüderitz.

Background to and Need for Project

The only cranage available at present at Lüderitz are two rail-mounted 3 t quay cranes, which are in poor condition. It is proposed that a small quantity of cargo handling equipment be provided, which could be supplemented as the need arises.

Project Components

Supply of the following equipment:

- 1 mobile port tower crane, capacity 24 t at 6 m;
- 1 heavy duty fork-lift truck, to stack 30 t containers 3 high and work inside ro-ro vessels;
- 1 medium duty fork-lift truck, to stack empty containers 4 high;
- 3 small fork-lift trucks;
- 1 general purpose 10 t crane;
- 3 tractor units; and
- 10 trailers (container flats and general purpose).

Project Cost and Implementation

The equipment should be provided to coincide with the completion of the port improvements Project P-CE-2, and has priority 2. The cost of the equipment is estimated to be USD 2.0 million.

ANNEX 3: STUDY OF FUTURE PORT FACILITIES FOR NAMIBIA

This annex includes (A) a Project Description for the Study and (B) Draft Terms of Reference.

A. Project Description

Project P-GM-1: Study of Future Port Facilities for Namibia

Description

The purpose of the study is to:

(i) Identify possible options for constructing or developing port facilities to cater for the emerging Namibian fishing industry and the requirements of providing Coast Guard and ancillary services and also for the possibility of replacing Walvis Bay as the main port for the movement of commercial goods.

(ii) Identify a best solution including a costed, phased development programme allowing for the upgrading of Lüderitz and/or the establishment of a new fisheries port to begin with, to possibly be extended later to cater for the commercial needs of the country.

(iii) State, in detail, the economic and other consequences of providing the new port facilities and the management structure which would be required.

Background to and Need for the Project

After independence, only the small port of Lüderitz will be under the direct control of Namibia. Lüderitz is not well located to serve the country's export and import needs or to facilitate exploitation of Namibia's rich fishing resources, which are mainly to be found off the northern half of the coastline. Walvis Bay, which is the only deep-water port, and handles almost all of Namibia's seaborne traffic at present, is controlled by South Africa. Although United Nations Security Council Resolution (UNSCR) 432 of 1978 states that Walvis Bay should be reintegrated with Namibia, its future is uncertain.

In view of this, it can be expected that the first government of independent Namibia would prefer to explore the consequences of new port facilities to reap maximum benefit from the fishing resources and to be assured of full access to a deep-water port. The purpose of the proposed study would be to provide the government with the basis for formulating a strategy in this regard.

A study with essentially the same focus has recently been initiated by the Windhoek administration, established by South Africa, and a commission has been appointed under the chairmanship of the Secretary for Economic Affairs. The study is divided into three phases: the first would identify the requirements, the second would focus on the marine environment and other site investigations, and the third phase would include the engineering studies. In December 1989, the commission appointed a consultant to carry out a part of the second phase. It is unclear as to how far the first phase has advanced, if at all.

The proposed study is envisaged to continue the work that has been initiated by the Windhoek administration and to allow the first government of independent Namibia to exercise full control over this activity.

The Study

The study would cover:

- analysis of requirements encompassing the needs of the commercial sector and the fishing and oil industries;
- scenario analyis; an evaluation of alternative scenarios in respect of the status of Walvis Bay;
- analysis of requirements, and associated demand for port services and facilities, as a result of Namibia becoming party to international conventions in the maritime field and the possible impact of a 200 mile exclusive economic zone after independence;
- engineering studies to determine the technical feasibility and the cost of various options. These studies would include, but not be restricted to, the following:

  * Hydrographic surveys and other investigations of the marine environment of Robert Harbour and selected areas of Lüderitz Harbour, and other selected sites along the coast where future oil terminals, fishing and/or commercial ports may be developed.

  * Feasibility study into the possibility of installing separate oil terminals.

  * Master Plan for the development of Lüderitz and sites north of Swakopmund in the medium and long-term, including the required onshore and hinterland infrastructure.

  * Each engineering study will include an environmental impact assessment for each proposed development;
- analysis to identify the best development option and strategy, including options for phased programmes, based on a least-cost analysis as well as the results of the scenario analysis;
- analysis of the institutional aspects and the financing of the port facilities. The study should evaluate alternative ways of operating the port and associated possibilities for mobilising capital relying on the private and public sectors, as well as donor agencies and development banks; and
- impact analysis; an evaluation of the effects of the recommended option and strategy on the overall macroeconomic performace of the country during and after implementation, considering alternative modes of financing, and the performance of specific sectors of the economy.

Project Cost and Implementation

The project is urgent and is recommended for implementation commencing during the immediate post-independence period (priority 1). The study is proposed to be carried out by a team of consultants, to include expertise in marine engineering, port engineering, geotechnology, hydrography, transport economies, financial analysis, decision analysis, macro economics and port operations. It will require about 18 months for its completion. The cost is estimated to be USD 1.5 million. Draft terms of reference have been prepared.

B. Draft Terms of Reference

Instructions to Tenderers

(Not provided here, but available)

Terms of Reference

1. INTRODUCTION

During the period of rule by South Africa, very little development of port facilities took place in Namibia, with the exception of Walvis Bay. In addition, the majority of imports and exports were transported by rail from and to South Africa. The fishing industry was largely unregulated during this time, with most of the profits going to offshore fleets or to processing plants in Walvis Bay.

Only the small port of Lüderitz is under the direct control of Namibia. Lüderitz is not well located to serve the country's export and import needs and to enable the exploitation of the Namibia's rich fishing resources, which are mainly to be found off the northern half of the coastline. Walvis Bay, which is the only deep-water port, and handles almost all of Namibia's seaborne traffic at present, is controlled by South Africa. Although United Nations Security Council Resolution (UNSCR) 432 of 1978 states that Walvis Bay should be reintegrated with Namibia, its future is uncertain.

In view of this, the Government of Namibia would prefer to explore the consequences of new port facilities to reap maximum benefit from the fishing resources and to be assured of full access to a deep-water port. The purpose of the proposed study would be to provide the Government with the basis for formulating a strategy in this regard.

A study with essentially the same focus was initiated by the previous Windhoek administration and a commission was appointed under the chairmanship of the Secretary for Economic Affairs. The study was divided into three phases: the first would identify the requirements, the second would focus on the marine environment and other site investigations, and the third phase would include the engineering studies.

The study covered by these Terms of Reference will continue the work that was been initiated by the Windhoek administration, and allow the Government of independent Namibia to exercise full control over this activity.

2. OBJECTIVES

The objectives of the study are to:

(i) Identify possible options for constructing or developing port facilities to cater for the emerging Namibian fishing industry and the requirements of providing coast guard and ancillary services and also for the possibility of replacing Walvis Bay as the main port for the movement of commercial goods.

(ii) Identify a best solution including a costed phased development programme allowing for the upgrading of Lüderitz and/or the establishment of a new fisheries port to begin with, to possibly be extended later to cater for the commercial needs of the country.

(iii) State, in detail, the economic and other consequences of providing the new port facilities and the management structure which would be required.

(iv) Formulate a strategy for the development of new port facilities based on all relevant aspects and facts.

The study will consider three main options for developing port facilities:

(i) Only a fishing port, to serve the in- and offshore fishing industry, with ancillary services.

(ii) A joint fishing and commercial port, with the commercial port being able to serve coastal and overseas traffic.

(iii) A phased development programme with a fishing port constructed initially and the facilities later expanded to be able to serve as a commercial port.

Other minor options shall also be considered, for example the installation of a single point-mooring to handle liquid fuel products.

3. SCOPE OF THE WORKS

The Consultant shall carry out all works necessary to reach the objectives listed above. The Scope of Works shall include, but not be limited to, the following:

3.1 Trade Forecasts

(i) Obtain all available data on traffic for the previous five years, including distribution by commodity and mode of transport.

(ii) Forecast traffic in 1993, 2000 and 2010, based on various scenarios for the development of the national economy.

(iii) Obtain all available data on the present size of the fishing fleet and in- and offshore fishing industry, and forecast size of the industry in 1993, 2000 and 2010.

(iv) As item (iii) above, but with reference to all other offshore activities (diamond mining, gas, etc.).

3.2 Forecasts of Demand for Port Facilities

Based on the traffic forecasts identified in 3.1 above, the Consultant shall predict the demand for all types of port facilities in 1993, 2000 and 2010.

The forecasts shall consider the following external factors:

- Walvis Bay remaining in present status;
- Walvis Bay becoming unavailable for use by Namibia;
- Walvis Bay being reintegrated with Namibia;
- land border with South Africa being closed;
- developments in Angola leading to the possibility of land traffic with Angola and import and export traffic routed through the port of Namibe;
- development of roads in Caprivi leading to increased road traffic to and from SADCC-member states;
- development of roads through Botswana (Gobabis Buitepos/Mamuno-Sekoma) leading to reduced transport costs and increased road traffic between Namibia, and Botswana and South Africa; and
- development of railways to connect the Namibian system with the SADCC-network, leading to increased transit traffic through Namibia.

The study will also examine the best mode of transport for the various commodities (e.g. container, general cargo, bulk, tanker, etc.).

3.3 Requirements of Maritime Administration

The Consultant shall consider the requirements arising from Namibia becoming signatory to international conventions, e.g. in respect of pollution control and prevention and rescue operations, and the associated demand for port services and facilities. The need for protecting the fishing resources shall also be taken into account, as well as the implications of the 200 nautical mile Exclusive Economic Zone declared by the Government of Namibia.

3.4 Siting Study

All existing information shall be examined, and the Consultant shall visit Lüderitz and the coast between Swakopmund and Mowe Bay. On the basis of this information a report shall be prepared outlining the possibilities for constructing port facilities at various locations.

3.5 Engineering Study

Following consideration of the reports prepared in Sections 3.1 - 3.4 above, the Consultant will be instructed to carry out a detailed Engineering Study of various projects. It is expected that these projects may include:

(i) A Master Plan for the development of Lüderitz.
(ii) The construction of a new port at some point between Swakopmund and Cape Cross, possibly in phases.
(iii) The provision of an oil terminal. This may be associated with (ii) above, but could also be an independent single point mooring located near Swakopmund. A small terminal may also be installed at Lüderitz.

The studies shall include all services required to provide definite outline plans, and where relevant phased plans, for development at each location, together with cost estimates and an environmental impact assessment. The services may include:

(i) Prediction of design wave height using available data and (if necessary) commissioning a wave prediction study from a specialist organisation.
(ii) Mathematical modelling of waves within harbours.
(iii) Hydrographic and topographic surveys, including current measurement, and beach profiles for siltation studies.
(iv) Seabed investigations using vibrocoring and push sampling.
(v) Siltation study, including mathematical modelling, if required.
(vi) Outline master plan of facilities, including zoning for various facilities.
(vii) Outline designs of all structures (including services) to a stage sufficient for accurate cost estimates.
(viii) Details of major equipment required (e.g. cranes, loaders etc.).
(ix) Clear recommendations on the throughput that the proposed facilities could achieve (e.g. in the case of commercial berths, the tonnage per year, or in the case of fishing berths the number of vessels that could be serviced and the tonnage of fish that could be offloaded.
(x) Details of any changes in basic infrastructure that may be required as a result of the proposed development (e.g. roads, rail, water supply and power supply).
(xi) Cost estimates for all proposed facilities, including equipment and changes to basic infrastructure. The cost estimate shall be split up into the recommended development phases. Details of the basic rates used in the preparation of the estimates shall be given.
(xii) An environmental impact assessment, including a full on-site field assessment of the site to characterise the current ecological resources present with particular reference to identification of environmentally sensitive areas or species. The possibility of adverse impacts resulting from the implementation of the proposed developments will be assessed with respect to faunal, floral and other ecological resources associated with the site. If deemed necessary, mitigation plans will be developed.

3.6 Financing Alternatives

Alternative financing arrangements shall be explored, including private and public sources, donor assistance and loans from development financing institutions. The implications for operations and the appropriate framework for operating the port shall be assessed. Special attention shall be paid to the revenue potential provided by the fishing industry and the possibility of using joint ventures. In this context, implications for training, manpower development and the operations of coast guard and ancillary services shall be identified and assessed. Attention shall also be given to the potential for providing services to the offshore fishing industry, including the format for operating these services, and the implications thereof for the mobilisation of finance.

3.7 Economic Study

As part of the economic studies, (i) the economic viability of different options shall be determined, (ii) the overall financial performance of the prospective port operator shall be assessed, (iii) the financial implications of alternative financing arrangements shall be studied and evaluated (iv) and a suitable tariff shall be identified and evaluated.

In view of the potential size of the project in relation to the overall economy of Namibia, an impact analysis shall also be carried out to identify and trace possible macro-economic effects considering alternative modes of financing. This refers, for example, to implications for other investments, the labour market and the price level.

3.8 Scenario Analysis and Strategy

Different scenarios shall be identified for the future status of Walvis Bay. A methodology shall be developed for how to formulate strategies for the development of port facilities considering jointly the results of the scenario analysis and the economic analysis. A recommended strategy shall then be formulated based on this methodology and the results of the analyses.

3.9 Outline Design

Following review of the previous studies, the Consultant will be instructed to prepare outline designs for selected schemes.

The outline designs shall be in sufficient detail to enable the Client to review the design, and invite bids for detailed design without further review. The designs shall include:

- a site plan on a scale of 1:500;
- plans on a scale of 1:50 of all buildings;
- schematics of all services;
- specification for all facilities, including operational requirements, design loadings, etc.;
- details of principal materials;
- specification of principal items of plant and equipment;
- summary of all available information (e.g. surveys, soils information, wind and wave data);
- outline design of any additions required to the basic infrastructure (e.g. road, rail, water supply and power supply); and
- revision of cost estimates in the light of the outline design.

The Consultant shall also give details of any further studies that he considers will be necessary (e.g. physical model studies, siltation study).

The Consultant shall also prepare Terms of Reference for Consultancy Services to cover detailed design and site supervision of the selected schemes.

3.10 Establishment of a Company for Port Operations

The Consultant shall provide advice on the actions required in order to set up an organisation for the operations of the facility, here termed a company. The work shall include:

- a draft constitution for the company;
- draft regulations (bye-laws) for the company;
- a management structure;
- recommendations concerning immediate requirements for recruitment and training;
- identification of need for management information systems, including soft- and hardware;
- proposals for a tariff structure;
- proposals for future studies into operations of the new port and training; and
- an identification of the regulatory framework and drafting of required legislation.

4. TIMING AND REPORTING

4.1 Inception Report

Six weeks from the start of the Study, the Consultant shall submit an Inception Report (12 copies) outlining his initial findings and proposed future work plan. The report shall identify all site investigations that are proposed.

4.2 Progress Reports

The Consultant shall submit a monthly Progress Report (6 copies) highlighting progress accomplished during the past month, problems encountered and projections of the next month's work plan.

4.3 Draft Reports

The Consultant shall submit the following Draft Reports (20 copies) within the time stated:

(i) Traffic Forecast, including the work detailed in Sections 3.1, 3.2 and 3.3: within 5 months of the start of the study.

(ii) Siting Study: within 5 months of the start of the study.

(iii) Engineering Study: within 8 months of instructions concerning the scope of the study, but not less than 13 months from the start of the study.

(iv) Financing Study: within 13 months of the start of the study.

(v) Economic Study: within 14 months of the start of the study.

(vi) Scenario and Strategy Study: within 15 months of the start of the study.

(vii) Report on the establishment of a company for port operations: within 13 months of the start of the study.

4.4 Final Reports

The Consultant shall modify the draft reports to take account of comments made by the Client. Final reports (30 copies) shall be submitted within one month of the receipt of the comments on the draft reports.

5. LIAISON

The Consultant shall have a senior engineer in Windhoek for the duration of the Study, who will be responsible for maintaining close liaison with the Client.

The Team Leader for each section of the study will hold discussions with the Client in the early stages of the study. The Team Leader will also be responsible for maintaining contact with the Client during the Study, and taking note of all comments made by the Client.

The Team Leader will also attend meetings with the Client after presentation of the Draft Reports.

Appendix A: Format for Fee Proposal

(Not provided here, but available.)

Appendix B: Summary of Available Information

The coast of Namibia is a desert region, and has no resident population except at Swakopmund/Walvis Bay, Lüderitz and isolated settlements. Consequently there is only limited information, available on the coast of Namibia.

The only natural harbours on the Namibian coastline are at Lüderitz and Walvis Bay. There are several north-facing bays, which have been used as landing places in the past, but they offer little natural protection. The coast is described in the British Admiralty African Pilot - Vol II. The ports of Walvis Bay and Lüderitz are described in several publications such as Ports of the World (Lloyd's of London Press).

The predominant waves are swell, generated by the SE Trades, and relatively close to the shoreline the waves are

most frequently from a S to SW direction. Wave records have been taken at several sites on the coastline, and the results have been presented by the South African Council for Scientific and Industrial Research (Report T/SEA8401, March 1984). These studies are likely to contain enough wave data for preliminary design, and possibly detailed design. The results of deep water (50 m) wave-ride measurements may be summarised as:

	Significant Wave Height (m)		
	Walvis Bay	Lüderitz	Orangemund
50%>	1.4	2.2	1.8
20%>	1.6	2.7	2.3
10%>	1.8	3.0	2.8
2%>	2.2	3.6	3.8
3 hours in 50 years	4.5	7.5	9.0

The results show that wave heights gradually decrease in a northward direction along the Namibian coast.

A major consideration in the design of port facilities is the littoral drift, which in some places may have caused the coast to move 1 or 2 miles from the latest charted position. The northward littoral drift is caused by the Benguela Current, and also by wave action. The amount of littoral drift is governed by the angle of the coast to the waves, hence the movement north of Swakopmund (when the coast is aligned NNW-SSE) is less than south of Walvis Bay (where the coast is almost N-S). There is little data on the magnitude of the drift, but it has been estimated to be in the region of 1-2 million cubic metres per year north of Swakopmund. The magnitude of the littoral drift is dependent on the specific site conditions, and this Study includes a siltation study to determine the effect of the development on the coastline, together with estimates of the likely siltation within the harbour.

The port of Walvis Bay at present handles the majority of the seaborne trade of Namibia. It has 8 wharves with a dredged depth of 10.3m, and a tanker berth. The port also has a large fishing harbour, with several processing plants. The quantity of cargo handled at Walvis Bay is not known, but it is understood that berth occupancy was less than 25% in 1988.

The port of Lüderitz has not been developed in recent years because Walvis Bay was better situated, and provided adequate natural protection. Lüderitz used to be a centre for the southern fishing fleet, but the fleet moved to Walvis Bay in the 1960s. At present, the port is the centre of the rock lobster industry, and also handles less than 20 000 tonnes of cargo each year. Coasters of up to 5 000 dwt with a draft less than 5.8 m can moor at the jetty, which was constructed in 1969. Larger vessels (up to 15 m) can moor in the outer harbour and offload into lighters. At present the port has no facilities for containers.

A brief feasibility study was carried out by SAS Brown in 1986 into expansion of Lüderitz to provide three container berths with 9 m or 10 m depth. The report concludes that the cheapest solution would be to construct the new berths on Shark Island (opposite the existing jetty), but that the best location would be a new port facility at Nautilus Bay, which would provide adequate space for future development. This report is useful because it concludes that development would be possible, and it gives ideas for options. However, it was a very brief study and its findings must be re-examined in this study.

The requirements of the Namibian fishing fleet were discussed in a report prepared by the FAO in 1988. This report concludes that the potential long-term fleet could total 340 boats (after an initial period with low volume fishing to allow stocks to recover). Facilities for these vessels could be provided in various ways, either at Walvis Bay, at sea, Lüderitz, neighbouring countries, or at new ports on the northern Namibian coastline. The possibility of constructing a new port to serve the northern fishing grounds was considered in the late 1960s leading to a full feasibility study into a harbour at Mowe Bay by Lillicrap, Wassenar & Partners in 1969, but the project did not proceed. The study concluded that a harbour for twelve trawlers and a coaster could be constructed, which could be expanded at a later date to accommodate vessels of up to 16 000 dwt. However, the report recommended further studies on the questions of littoral drift and selection of the design wave height. It was intended that the harbour should be largely self-contained, with access by air and by a track along the coast from the south.

Appendix C: Available Sources

This appendix gives details of previously published reports. The inclusion of an item on this list does not indicate that the information contained therein will be available (i.e. the report may be confidential, or may have been lost).

The Consultant will be responsible for locating all the reports listed (where possible), including all costs incurred. The Contractor will also be responsible for appraising the data contained in the reports, and advising on the accuracy of the data.

1. Trade

1.1 Government Statistics
1.2 World Bank Statistics
1.3 Study on Transport and Communications for Namibia. 1990.

2. Fishing Industry

2.1 Namibia: Analysis of Policy Options and Preparation of Contingency Plans for Fisheries: UNCNNP, UNDP, FAO, Rome 1988. This report includes a full list of references on the fishing industry.

3. Ports Facilities and Coastline - Present Situation

3.1 Charts published by British Admiralty, South African Hydrographic Department and German Government (pre 1930).
3.2 Unpublished hydrographic information held by British and South African Hydrographic Departments.
3.3 Study on Transport and Communications for Namibia, 1990.
3.4 Review of Existing Wave Data, Wave Climate and Design Waves for South African and South West African (Namibian) Coastal Waters, J. Rossouw, Council for Scientific and Industrial Research, Stellenbosch, South Africa. March 1984, CSIR Report T/SEA 8401.
3.5 Wave Conditions for the South West Africa Coastal Area. Ocean Wave Research - Report No. 7 CSIR, Stellenbosch, South Africa, October 1970.

3.6 Wave reports from passing ships. Data held by several centres worldwide.
3.7 Lüderitz Bay Port Information. Compiled by the Lüderitz Port Users' Committee.
3.8 Port Handbook 1989-90, Walvis Bay Harbour. Published by the Port Director, Walvis Bay Harbour.
3.9 Engineering Geology of Southern African, Vol 4, A.B.A. Brink, Building Publications, Pretoria, 1985.
3.10 Aerial photographs of sites between Sandwich Harbour and Cape Cross, held by the Geological Survey Department, Windhoek. These are 35 mm pictures, but may yield information on littoral drift.
3.11 Aerial photographs held by the Survey Department, Windhoek.

The references listed in Section 4 also contain details of the present situation.

4. Reports on Proposed Future Facilities

4.1 Report on the Potential of Lüderitz for Development. S.A.S Brown, Johannesberg, 17th July 1986.
4.2 Report on an Investigation into the Potential Development of Walvis Bay, Transport Research Centre, University of Stellenbosch, 1977.
4.3 Trans Kgalagadi Railway Study. Ministry of Mineral Resources and Water Affairs, Government of Botswana. Gaborone, 1984.
4.4 Study on Transport and Communications for Namibia. 1990.
4.5 Report into siting of harbour on Northern Namibian Coastline, Prepared by Sarusas and CSIR, Stellenbosch, South Afica, Report MEG 653, March 1968.
4.6 Report on Feasibility Study of a Harbour and Terminal Facilities at Mowe Point, Lillicrap Wassenaar & Partners, Johannesburg, 25th May 1969.

ANNEX 4: PROJECT DESCRIPTIONS; DEPARTMENT OF POSTS AND TELECOMMUNICATIONS

Project T-TC-1: Improvements to the Telecoms System in Ovamboland and Kavango

Description

The project comprises the replacement of manual telephone exchanges and additional transmission capacity in order to improve and extend telephone services in Ovamboland and Kavango.

Background to and Need for the Project

The exchanges in the northern part of the country are all manual, based on manual switchboards. Their junction lines are saturated. In some areas there is almost a complete absence of services, for example in Bushmanland. In other parts, the capacity is clearly inadequate. For example, although the manual switchboard at Oshakati was extended from 800 to 1,100 lines in April 1988, there are currently more than 200 waiting applicants. The exchange in Rundu, serving Kavango, has a capacity of 900 lines, with 200 spare numbers at present.

The development of the telecommunications system in Eastern Caprivi is currently restricted by the transmission line to Rundu, and it is not foreseen that a large-scale development is possible until a long-term solution to this problem has been found. A review of the telecoms network in Eastern Caprivi will be carried out when preparing the master plan proposed as part of project T-GM-1, and as part of Project T-TC-2 on international connectivity.

To improve telecoms facilities in Ovamboland and Kavango, DOPAT is proposing to extend the trunk network by laying optical fibre cables from Tsumeb to Oshakati, and from Tsumeb to Rundu via Grootfontein. The former project has already been initiated and is expected to be completed during FY 1990/91. It is proposed that the cable to Rundu should have 300 trunks and 4 fibres. It would also carry television transmissions.

It is also proposed that the exchanges in Oshakati, Ondangwa, Ongwediva and Rundu should be automatized, and that the exchange in Tsumeb should be replaced and upgraded. The exchanges are proposed to be Siemens E.W.S.D electronic exchange type for Oshakati (3,400 lines), Rundu (3,000 lines) and Tsumeb, while digital line concentrator units would be installed at Ondangwa (960 lines) and Ongwediva (960 lines). The Rundu exchange would serve all of Kavango and would also act as a switching exchange for Caprivi.

At present, Bushmanland is only served by a HF-radio link to Walvis Bay. To improve services, DOPAT is proposing the construction of an open wire route from Grootfontein. It is envisaged that a manual exchange, made available through replacement by an automatic exchange elsewhere, would be used.

DOPAT's proposals are presented in a project document entitled Development Projects (ref.13). They are compatible with the present structure of and ongoing extensions to the network. They are also believed to be financially viable. It is proposed that the project in respect of Ovamboland and Kavango be reviewed initially as part of the proposed master plan (see Project T-GM-1), which would also review the financial viability of the project and prepare detailed cost estimates on a priority basis.

It is unlikely that the fiscal situation will allow local funds to be made available for the implementation of all of the projects proposed by DOPAT for the northern part of the country for quite some time. The current manpower shortages also prevent a timely implementation of the projects. It is, however, anticipated that if donor assistance is provided in respect of Kavango and Ovamboland, it will be possible for DOPAT to implement the proposed components in respect of Bushmanland with its own financing and staff.

Project Components and Costs

The project is estimated to cost:

		USD million
(i)	Oshakati exchange	1.3
(ii)	Ondangwa exchange	0.6
(iii)	Ongwediva exchange	0.4
(iv)	Tsumeb trunk exchange	1.2
(v)	Installation works (i)-(iv)	0.4
(vi)	Rundu exchange	1.6
(vii)	Installation works (vi)	0.4
(viii)	Rundu-Tsumeb transmission line	4.7
(ix)	Consultant services (50 manmonths for detailed engineering and supervision)	1.0
	Total:	11.6

The cost estimates include power, site works, etc.

Implementation

To implement the project a project group should be constituted, comprising one switching engineer from DOPAT, on a part time basis, and two consultant engineers on a full time basis (one switching and one transmission engineer). The project group would be responsible for detailed design, procurement and supervision. The installation works would be carried out by a contractor.

Project implementation is recommended to commence in about one year to 18 months after independence (priority 2), to allow for proper start-up of project T-GM-1, and a first review of the preliminary design as part of the master planning exercise. The total implementation time from planning to cut over is estimated at 2 years.

Finance in respect of the Ovamboland components (i.e. components (i), (ii), (iii) and parts of (v) and (ix), is currently being reviewed by the Windhoek administration, and donor assistance may allow this part of the project to commence in FY 1990/91.

Project T-TC-2: International Telecommmunications

Description

The project would comprise a feasibility study on how best to improve Namibia's international connectivity, and detailed design and implementation of the recommended alter-

native. The project aims at determining and providing for a first step in improving international connectivity and is based on the assumption that the present route through South Africa remains accessible.

Background to and Need for the Project

All telephone calls to and from Namibia are routed through the international switching centres in Johannesburg and Cape Town, via the microwave link between Windhoek and Upington. The capacity of this route is adequate at present, reflecting the fact that most international traffic is with South Africa. Furthermore, it is not anticipated that there will be capacity problems developing soon after independence on account of more traffic to and from other countries.

However, the present arrangements make independent Namibia very reliant on South Africa. It has also become an accepted standard in international telecommunications to allow for diversity, and for that reason most of the countries in Southern Africa now have access to more than one route for international services.

Alternatives

A number of alternatives have been evaluated as part of a pre-study of how to provide an additional link. This study identified two main alternatives as feasible:

(i) An earth station in Windhoek. The station would be used as a gateway to one or two terminating points, probably the UK and West Germany. The space segment would be expected to be provided by the INTELSAT system. Provided neighbouring countries are also served by INTELSAT, it would be possible to establish circuits also to these countries.

(ii) A digital microwave link from Windhoek to the Botswana border, to link up with the microwave link system currently being constructed in Botswana. The link would be 34 Mbit/s 1+1 and full diversity is required. It would provide access to SADCC-member states via the PANAFTEL network. It would also provide overseas access via PANAFTEL, international switching centres and earth stations in Gaborone, Harare and Lusaka.

Other solutions, for example the construction of an optical fibre cable to link up with the Botswana network, were found to be inferior for technical and financial reasons. This refers, however, only to the link between Windhoek and Gobabis, while the possibility of laying an optical fibre cable from Gobabis to the border still has to be investigated.

For both alternatives, the digital exchange in Windhoek would have to be upgraded with C11 software.

It has as yet not been possible to prepare preliminary designs of the two alternatives and to carry out proper feasibility studies. It is also not clear how many channels are required for overseas traffic, on account of a lack of statistics. Indications are, however, that about 40 channels each would be sufficient for both Europe and North America for a number of years.

Given such an assumption, the best INTELSAT-system is likely to be IDR in conjunction with DCME-gain. Two 512 Kbits/s IDR with DCME would then give 40 channels to each of the two terminating points. The system could be upgraded later, if needed.

The cost of this alternative is estimated at about USD 6 to 8 million. In addition, there would be an annual fee for the space segment and associated DCME gain to be paid to INTELSAT at about USD 150,000.

The constuction of the digital backbone network in Botswana is divided into three phases:

(i) Francistown - Kasane 1987-1989
(ii) Kasane - Ghanzi 1987-1991
(iii) Ghanzi - Gaborone 1990-1993

The plans also provide for an extension of the network to the border at Buitepos, provided that Namibia would link up there. It is anticipated that the link to Mamuno, on the border, could be ready by about 1992, if required.

The costs for a terrestrial system to Botswana are estimated at USD 8 to 9 million (only includes costs within Namibia), and are therefore likely to be higher than for the other alternatives. There are, however, some other advantages offered by this alternative, including:

- it would enhance capacity on the Windhoek - Gobabis route and provide circuits for radio and television-transmissions;
- the towers could be used for establishing radio systems to serve rural areas;
- it could provide a new route for serving Eastern Caprivi by making use of the Botswana system between Mamuno and Kasane and by constructing a new link between Kasane and Katima Mulilo (about 110 km). This is likely to improve services as the capacity of the present route via Rundu is inadequate; and
- it would give very good access to the neighbouring countries.

Project Components and Costs

To prepare the project adequately a feasibility study is required. This would require 3 man-months for a radio engineer, 3 man-months for a switching and traffic engineer and 3 man-months of expert time to prepare and draft agreements required with INTELSAT and/or neighbouring states, and to evaluate the financial and economic implications. The purpose of the feasibility study is to identify which alternative is best as a first step to improving international connectivity and the cost of this alternative. If it is concluded that a satellite system is preferable, there will be an additional need for consultant services, about 18 man-months for detailed design and supervision.

The components of the project are:

	USD million
(i) Consultancy services for feasibility, detailed design and supervision	0.5
(ii) Construction and equipment for recommended alternative	6-9
Total about:	8.0

Implementation

The feasibility study should be based on the results of the master planning project, or at least not be commenced until this project is well underway. It is proposed that project implementation should commence about one year after in-

dependence (priority 2). Erection of the earth station or the microwave link would be done by a contractor. Total implementation time is estimated at 2.5 years.

Project T-GM-1: Preparation of Master Plan for the Telecoms Network and for Incorporaion of Posts and Telecommunications

Description

The project comprises technical assistance to the Department of Posts and Telecommunications (DOPAT) to (i) prepare a master plan for the medium to long-term development of the telecoms network, and (ii) to undertake all necessary preparatory work required for the incorporation of the post and telecommunications services. The master plan includes a review of DOPAT's total training requirements, including an identification of a strategy for the development of DOPAT's functional training centre.

Background to and Need for the Project

The postal and telecommunications services are currently operated by an administration set up as a government department. It is responsible for both regulatory and operational activities, and is also the administrator of the post office laws. Principles of operation follow conventional public service standards, which means that DOPAT enjoys no autonomy in the financial sphere and follows the service conditions generally applied to the civil service. DOPAT currently receives all its operating and capital funds from, and hands over all its revenues to the Treasury.

This mode of operation is generally believed to be incompatible with efficient operation for a post and telecoms office. It has therefore been a general trend worldwide, including many African countries, to instead operate postal and telecommuncitions services in the format of a government-owned corporation. The impending independence appears to afford an opportune moment to pave the way for a similar reform also in Namibia.

The present absence of medium to long-term plans for the telecoms network, is one indication of the problems associated with the current mode of operation. It tends to lead to a focus on current problems, rather than on the strategic and longer term aspects. For the development of the telecoms network, this can have detrimental effects. One reason is the need to ensure that there is a comprehensive philosophy underlying the development of the network. Another is the heavy investment requirements; in fact, telecoms is typically one of the largest investors in capital projects in both developing and developed countries. In addition, the lead time between planning and commissioning is normally very long. The costs of making incorrect investments is therefore considerable.

In view of the close relationship between the large investments required to be made in the telecoms network and the financial performance of a post and telecoms corporation, it is necessary to look at these two aspects simultaneously. For this reason, the proposed project will encompass both the preparation of the master plan — covering a 10-year period — and the plans for incorporation, although it is envisaged that these two components will be executed by two different teams working partly in tandem. Technical assistance is required to allow DOPAT's staff — already short of a number of experts — to carry on with their normal activities during the post-independence period, but also as the types of expertise required is partly not available.

Technical Assistance

The scope of work for the team responsible for preparing the incorporation will, *inter alia*, include:

- propose and develop appropriate organisational structures, including the design of a regional structure for operations, allowing for decentralised management;
- formulate new salary, manpower and manpower development policies, including job descriptions;
- develop new management information systems;
- identify soft- and hardware requirements;
- develop and carry out preliminary training programmes;
- review procedures for setting tariffs;
- make financial and economic evaluations; and
- draft necessary legislation and associated regulations.

If a decision is taken to carry the proposed incorporation through, the scope of work should be extended to provide assistance with the implementation of the programme, to be extended to cover a period of up to about 12 months after the day of incorporation. The extended phase would also include training.

In addition, a follow-up phase should be provided for. This phase would allow for check-ups which could result in corrective actions or assist staff to understand their new tasks and places in the organisation better.

The master planning exercise should be prepared in such a way that it could be updated regularly by the post office staff thereafter. The master plan, which would be based on clear objectives and embody government policies, would comprise the following components:

- fundamental plans for switching, numbering, synchronisation, routing and signalling, and transmission;
- traffic and numbering forecasts;
- development of the rural network;
- investment plans, 10 years and 3 years;
- economic and financial viablility; and
- manpower and training requirements.

The work in respect of the development of the rural network, the network in the northern parts of the country (Project T-TC-1), and international connectivity (project T-TC-2) would be done on a priority basis. The master plan may furthermore identify additional development projects, e.g. rural communications, replacement of the telex exchange, etc.

The manpower and training requirements component of the master plan would not only focus on the additional needs arising out of the master planning exercise, but also on the overall needs of DOPAT. This component, which will be executed together with the corresponding component pertaining to incorporation, will, *inter alia*, address the following issues:

- strategies and actions required for ensuring that candidates for recruitment by the DOPATs functional training centre have an adequate background in science, mathematics and technical subjects;

- the future development of the functional training centre, including the scope for enlarging its role to serve the requirements of other sub-sectors;
- the need for additional facilities, equipment, etc. for training purposes;
- the organisational and operational framework of the functional training centre after incorporation; and
- if required, assist DOPAT to develop special programmes to speed up the integration and advancement of returnees.

It would also include a "preliminary design", with cost estimates, of the envisaged solutions, prepared in a format which is suitable for consideration by a donor.

Project Cost and Implementation

To undertake the proposed work, two project groups would be established. The group concerned with incorporation would comprise experts in (i) organisation, (ii) information systems, (iii) training, manpower development and industrial relations, (iv) finance and economic analysis, and (v) legal matters. The experts in training, manpower development and industrial relations, and in finance and economic analysis, would also be used by the project group for preparing the master plan.

The preparatory phase for incorporation is expected to last about 18 months and another 12 month period would be required for implementation, while the follow-up phase would last between 6 and 10 months. The total input of expert time is estimated at 85 man-months.

The group for preparing the master plan would consist of (i) one senior engineer from DOPAT on a part-time basis, (ii) one senior consultant engineer, and (iii) four part-time consultants for switching and traffic, transmission, outside plant, and data communication and telex. About 30 man-months of consultant services would be required. Plan preparation would require about 7 months.

The total cost of the project is estimated at about USD 2.2 million, including provisions for training of DOPAT staff as part of an incorporation, but excluding costs for soft- and hardware required by new management systems.

The project is urgent and it is recommended that implementation commences during the immediate post-independence period (priority 1). If it is found that the component concerning incorporation is not appropriate for the immediate post-independence period, the master plan component should go ahead as a separate project.

APPENDIX 1. Acts, Proclamations and Ordinances of Relevance to the Transport and Communications Sectors (as at end of November, 1989)

Abbreviations:

AG Administrator-General
GG Government Gazette, Republic of South Africa
OG Official Gazette Extraordinary of South West Africa

Note 1. Full source, including Gazette number and date of issue, is normally only provided for Namibian acts, ordinances and proclamations, and only occasionally for South African laws. These laws are available through the Statutes of the Republic of South Africa.

Note 2. Attempts have been made to be comprehensive, but it has not been possible to confirm that all major acts, etc., of relevance have been included. Laws only containing amendments in terms of fees and charges have not been included.

1. Government Affairs

South-West Africa Constitution Act, 1968, Act No. 39.

Comment: RSA law in force today. This act consolidates the laws relating to the constitution of an executive committee and legislative assembly for the territory of South-West Africa. It sets out the power, authorities and functions of such committee and assembly. It also sets out the powers of the Administrator and the manner of legislation.

Development of Self-Government for Native Nations in South-West Africa Act, 1968, Act No. 54.

Comment: RSA law; repealed by Proclamation No. AG 8, the Representative Authorities Proclamation.

South-West Africa Affairs Act, 1969, Act No. 25.

Comment: RSA law in force today. It provides for the readjustment of administrative, legislative and financial matters relating to the territory of South-West Africa.

Establishment of Office of Administrator-General for the Territory of Sout-West Africa, Proclamation No. 180 of 1977, GG 5719, 19/08/77.

Comment: RSA Proclamation.; in terms of Act 39 of 1968, establishes the office of AG, who is appointed by the RSA State President to perform such functions as assigned to him by law.
Empowering of the Administrator-General for the Territory of South-West Africa to Make Laws, Proclamation No. 181 of 1977, GG No. 5719, 19/08/77.

Comment: RSA Proclamation.; in terms of Section 38(2) of Act 39 of 1968, empowers the AG to make laws for the territory by proclamation in the Official Gazette. Such powers include amendment or repeal of existing provisions, including Acts of the South African parliament in so far as they relate to Namibia.

Executive Powers Transfer Proclamation, 1977, Proclamation No. AG. 3, OG No. 3651, 28/09/77.

Comment: Transfers executive powers in respect of several departments to the AG from South African cabinet ministers (not relevant to transport and communications).

South-West Africa Constitution Act (39/1968) Amendment Proclamation, Proclamation R. 242 of 1977. GG No. 3654, 03/10/77.

Comment: Amends Section 14(1) to provide for a 5-year term for the Assembly, which shall not be dissolved save by the effluxion of time.

Executive Powers Transfer (General Provisions) Proclamation, 1977, Proclamation No. AG. 7, OG No. 3668, 15/11/77.

Comment: Provides framework for transfer of executive powers in specific ministries to AG from South African cabinet ministers.

Executive Powers Transfer Amendment Proclamation, 1978, Proclamation No. AG. 10 of 1978, OG No. 3712, 02/03/78.

Comments: Amends, *inter alia*, Proclamation No. AG 7 of 1977, to clarify that RSA laws being administered by the AG or under his authority only include amendments passed by the RSA Parliament before the commencement of the transfer of the authority to administer the law concerned to the AG, unless it is expressly declared that the amendment shall apply to Namibia.

Executive Powers (Posts and Telecommunications) Transfer Proclamation, 1978, Proclamation No. AG. 12, OG No. 3714, 02/03/78.

Comment: Transfers relevant powers from the South African cabinet minister to the AG, and lists exceptions (see below).
Executive Powers (Transport) Transfer Proclamation, 1978, Proclamation No. AG. 14, OG 3717, 15/03/78.

Comment: Transfers relevant powers from the South African cabinet minister to the AG, and lists exceptions (see below).

National Assembly Proclamation, 1979, Proclamation No. AG. 21, OG No. 3957, 14/05/79.

Comment: Repealed by Proclamation No. AG 3 of 1983; established the first National Assembly (1979-83). Also resolved that the responsibilities of RSA government departments and institutions in Namibia should be transferred to local departments/institutions.

Functions of Directorates Act, 1979, Act No. 4, OG No. 3995, 11/07/79.

Comment: Sets out functions of government directorates (i.e. proto-departments), responsible to the National Assembly, to take over responsiblities of regional offices of the RSA public service in Namibia.

Functions of Directorates Amendment Proclamation, 1979, Proclamation No. AG. 34, OG 4041, 28/11/79.

Comment: Amends Act No. 4 of 1979 to, *inter alia*, enable the establishment of the Directorate of Posts and Telecommunications.

Representative Authorities Proclamation, 1980, Proclamation No. AG. 8, OG 4127, 24/04/80.

Comment: Establishes 2nd tier authorities of that name for each of 11 officially defined ethnic groups.

Government Service Act, 1980, Act No. 2, OG No. 4116, 14/04/80.

Comment: Establishes an autonomous SWA/Namibian Government Service, and lists the new departments, including the Department of Posts and Telecommunications.

Government Notice No. AG. 53 of 1980: Notice of Establishment of Directorate of Transport (in terms of Act 4 of 1979), OG No. 4169, 03/06/80.

Comment: Established the Directorate of Transport, in anticipation of the subsequent law.

Amendment of Schedule to Government Service Act, 1980 (Act 2 of 1980), Proclamation No. AG. 18, OG No. 4212, 01/07/89.

Comment: Establishes, *inter alia*, the Department of Transport.

Government Service Amendment Proclamation, 1981, Proclamation AG No. 10, OG No. 4436, 01/04/81.

Comment: Amends Sections 15, 17, 18 and 31 of the Government Service Act, Act No. 2 of 1980, in respect of the South-West African Police.

Executive Powers Transfer (General Provisions) Amendment Proclamation, 1982, Proclamation No. AG 20, OG No. 4668, 18/08/82.

Comment: Clarifies Section 3 of Proclamation AG 7 of 1977 and Section 3 of Proclamation AG 10 of 1978, in that all amendments to RSA laws which have been transferred in part or *in toto* to the AG, are declared invalid in Namibia, unless passed before the transfer of authority to the AG or expressly declared to be valid in the Amendment Act or any other law. This amendment is retrospective to 02/03/78, the date of Proclamation AG. 10 of 1978.

Government Service Amendment Act, 1982, Act No. 23, OG No. 4728, 30/12/82.

Comment: Extends provisions relating to the retention of the right of certain persons to retire at a particular age, etc.

National Assembly and Council of Ministers Proclamations Repeal Proclamation, 1983, Proclamation No. AG 3 of 1983, OG No. 4379 25/01/83.

Comment: Abolishes first National Assembly (1979-83), as from 19/01/83; repeals Proclamation AG 21 of 1979 and related amendments.

Government Service Amendment Proclamation, 1984, Proclamation No. AG 39, OG No. 4983, 30/11/84.

Comment: Makes numerous amendments to the principal Act relating, *inter alia*, to the role of Government Service Commission, educational matters and the National Education Act, Act No. 30 of 1980.

South-West Africa Legislative and Executive Authority Establishment Proclamation, 1985, Proclamation R. 101, GG No. 9790, 17/06/85.

Comment: Proclamation by RSA State President. Establishes the Second National Assembly, 1985 to 1989. Repealed by Proclamation No. AG 10 of 1989.

Government Service Amendment Act, 1986, Act No. 8, OG No. 5206, 02/05/86.

Comment: Alters provisions in relation to determination of contribution scales to medical aid scheme for government service officials.

Government Service Amendment Act, 1987, Act No. 17, OG No. 5438, 01/10/87.

Comment: Makes provision for appointments, promotions, transfers of heads of departments, and matters related to retirement, early retirement and service termination of officers.

Government Service Amendment Act, 1989, Act No. 6, OG No. 5680, 28/02/89.

Comments: Makes provisions for appointment, retirement and termination of service in respect of members of the Government Service Commission.

Representative Authorities Powers Transfer Proclamation, 1989, Proclamation No. AG 8 of 1989, OG No. 5710, 09/05/89.

Comment: Transfers certain powers, duties, functions and rights to the AG consequent upon dissolution of the Representative Authorities on 31/03/89 for purposes of implementing UNSCR 435. Many laws and proclamations relating to these Authorities are repealed in part or whole.

Repeal of the Laws on the National Assembly, the Cabinet and the Constitutional Council Proclamation, 1989, Proclamation No. AG 16 of 1989, OG No. 5730, 12/06/89.

Comment: Repeals Proclamation R 101 of 1985 and the Constitutional Council Act, Act No. 8 of 1985 and their related amendment acts; transfers the powers, duties, functions, rights and obligations of the Cabinet to the AG with effect from 01/03/89.

First Law Amendment (Abolition of Discriminatory or Restrictive Laws for Purposes of Free and Fair Election) Proclamation, 1989, Proclamation No. AG 14 of 1989, OG No. 6726, 08/06/89.

Comment: Amends, *inter alia*, the Post Office Act, 1958, Act No. 44 of 1958.

Second Law Amendment (Abolition of Discriminatory or Restrictive Laws for Purposes of Free and Fair Election)

Proclamation, 1989, Proclamation No. AG 25 of 1989, OG No. 5758, 22/07/89.

Comment: Amends, *inter alia*, the Government Service Act, Act No. 2 of 1980, by deleting Section 17(1)g.

2. National Transport Corporation (NTC); pertains to the railway, Lüderitz port, NTC road transport services, Namib Air and possible future pipelines

Executive Powers Transfer Proclamation (South African Transport Services), 1986, Proclamation No. R. 52, GG No. 10169, 27/03/86.

Comment: Proclamation by RSA State President. Repealed by Act 21 of 1987. Transferred executive powers over SATS in Namibia, except the Travel and Publicity Department and SAA, to the AG.

National Transport Corporation Act, 1987, Act No. 21, OG No. 5439, 01/10/87.

Comment: Establishes the NTC as a multimodal commercial corporation.

Commencement of the National Transport Corporation Act, Proclamation No. AG. 19, 1988, OG No. 5567, 01/07/88.

National Transport Corporation Amendment Proclamation, Proclamation No. AG 20 of 1989, OG No. 5741, 01/07/89.

Comment: Changes name of NTC Ltd. to TransNamib Ltd.

3. Roads

The Advertising on Roads and Ribbon Development Ordinance, 1960, Ordinance No. 30, OG No. 2254, 30/05/60.

Comment: Restricts advertising and building developments along proclaimed roads.

Roads Ordinance, 1972, Ordinance No. 17, OG No. 3268, 07/07/72.

Comment: Sets out responsibilities of the executive authority in regard to provision, maintenance and control of roads.

Roads Further Amendment Ordinance, 1973, Ordinance No. 22, OG No. 3363, 28/11/73.

Comment: Amends Ordinande 17 of 1972 with regard to the application thereof within the areas of local authorities, and incidental matters.

Roads Amendment Ordinance, 1974, Ordinance No. 10 of 1974. OG 3411, 16/07/74.

Comment: Numerous amendments to Ordinance 17 of 1972 clarifying definitions, the application of the Ordinance within local authority areas and to certain tourist area roads, objections procedures, frequency of meetings of roads boards, safety of excavations, prevent wilful hinderance of free traffic flows, etc.

Roads Amendment Ordinance, 1980, Ordinance No. 6, OG No. 4136, 02/05/80.

Comment: Permits changes to width of road reserves.

Appliclation of Laws Relating to Roads in Eastern Caprivi, Owambo, Kavango and Damaraland Act, 1982, Act No. 5, OG No. 4618, 08/04/82.

Comment: Applies the Roads Ordinance, as amended, to these areas, retrospectively to 01/07/80.

Roads Ordinance Amendment Proclamation, 1984, Proclamation No. AG 21, OG No. 4926, 11/07/84.

Comment: Deletes paragraph (e) of Section 6.

Roads Amendment Act, 1986, Act No. 13, OG 5235, 21/07/86.

Comment: Alters the provisions for roads board chairmen.

4. Road Traffic

Road Traffic Ordinance, 1967, Ordinance No. 30, OG No. 2808, 28/06/67.

Comment: Sets out basic responsibilities with regard to control of vehicles and traffic by the executive authority.

Road Traffic Amendment Ordinance, 1968, Ordinance No. 19, OG No. 2895, 10/06/68.

Comment: To, *inter alia*, modify certain definitions in the principal ordinance.

Road Traffic Amendment Ordinance, 1969, Ordinance No. 25, OG No. 3010, 24/06/69.

Comment: To, *inter alia*, amend certain definitions in the principal ordinance.

Road Traffic Amendment Ordinance, 1970, Ordinance No. 18, OG No. 3099, 08/07/70.

Comment: To, *inter alia*, insert certain definitions in the principal ordinance.

Road Traffic Amendment Ordinance, 1971, Ordinance No. 18, OG No. 3194, 30/06/71.

Comment: To amend certain provisions in the principal ordinance.

Road Traffic Amendment Ordinance, 1972, Ordinance No. 16, OG No. 3267, 05/07/72.

Comment: Amends certain definitions, procedures for appointment of registering authorities, and matters pertaining to drivers' licences.

National Road Safety Act, 1972, Act No. 9, GG No. 3415, 15/03/72.

Comment: RSA law which is also applied in Namibia, but is administered by Pretoria, having been excluded from the scope of Proclamation AG 14 of 1978. The law will be repeal-

ed in Namibia prior to independence. It establishes the National Road Safety Council, to control road safety.

Road Traffic Amendment Ordinance, 1973, Ordinance No. 4, OG No. 3304, 28/02/73.

Comment: Repeals section 163 of the principal ordinance.

Road Traffic Amendment Ordinance, Ordinance No. 3 of 1974, OG No. 3387, 11/03/74.

Comment: Amends Ordinance 30 of 1967 with regard to authority to display a road sign, and to provide for reinspection without fee of vehicles found to be unroadworthy.

Second Road Traffic Amendment Ordinance, Ordinance No. 11 of 1974, OG No. 3412, 26/07/74.

Comment: To modify certain definitions in the principal ordinance.

Road Traffic Amendment Ordinance, 1975, Ordinance No. 19, OG No. 3497, 16/10/75.

Comment: To, *inter alia*, delete definitions in the principal act.

Road Traffic Amendment Ordinance, 1976, Ordinance 10 of 1976, OG No. 3546, 25/06/76.

Comment: Many amendments to Ordinance 30 of 1967, e.g. with regard to suspension or cancellation of licences, period of validity of certificates of fitness, exemptions from speed limits, driving of vehicles with an excess alcohol level in blood, weighbridge procedures.

Second Road Traffic Amendment Ordinance, 1976, Ordinance No. 13 of 1976, OG No. 3572, 02/11/76.

Comment: Amends Ordinance 30 of 1967 to alter the definition of prescribed territory so as to include the so-called independent bantustans; to alter rural speed limits etc.

Road Traffic Amendment Ordinance, 1978, Ordinance No. 2, OG No. 3733, 06/04/78.

Comment: Numerous minor amendments of the principal ordinance.

Road Traffic Amendment Ordinance, 1979, Ordinance No. 4 of 1979, OG No. 3925, 27/02/79.

Comment: Amends Ordinance 30 of 1967 to enable the issue of light vehicle learner's licences to 17 year olds, and incidental matters.

Road Traffic Amendment Ordinance, 1980, Ordinance No. 17 of 1980, OG No. 1167, 31/05/80.

Comment: Numerous amendments to Ordinande 30 of 1967, in regard to registration of state vehicles, issuing of licences, display and disregarding of traffic signs, exemptions from speed limits, etc.

Application of Road Traffic Legislation in Owambo, Kavango, Damaraland and Eastern Caprivi Act, 1981, Act No. 8, OG No. 4498, 15/07/81.

Comment: Applies the Road Traffic Ordinance, as amended, and related measures to the areas specified.

Road Traffic Amendment Act, 1985, Act No. 17, OG No. 5110, 09/10/85.

Comment: Provides for appointment of traffic wardens and for matters relating to drivers' licences.

Motor Vehicle Accident Act, 1986, Act No. 84.

Comment: RSA law applicable *ab initia* also to Namibia. Governs third party insurance and the operation of the Motor Vehicle Accident Fund. The law is administered by Pretoria, having been excluded from the scope of Proclamation AG. 14 of 1978. Suspended by the following act.

Multilateral Motor Vehicle Accidents Fund Act, 1989, Act No. 93, GG No. 11944, 14/06/89.

Comments: RSA law also applied to Namibia. Suspends Act No. 84 of 1986. Gives force to multilateral agreement involving the RSA and the so-called TBVC "states", which institutes a Multilateral Motor Vehicle Accidents Fund for third party insurance.

5. Road Taxation and User Charges

Central Energy Fund Act, 1977, Act No. 38, as amended by Acts No. 30 of 1979, No. 74 of 1979, No. 21 of 1980, No. 68 of 1980, No. 73 of 1984, No. 46 of 1985, No. 70 of 1987, No. 55 of 1988.

Comment: RSA law also applied to Namibia. Provides, *inter alia*, for the imposition of a levy for the benefit of the Equalization Fund on every litre of petrol, aviation spirit, kerosene, distillate fuel, residual fuel oil, naphtha, base oil, products of base oil or every kilogram of grease or liquefied petroleum gas, and the imposition of a levy for the benefit of the Central Energy Fund on every litre of petrol, distillate fuel or residual fuel oil.

Petroleum Products Act, 1977, Act No. 120, as amended.

Comment: RSA law also applied to Namibia. Provides, *inter alia*, for (i) the imposition of any duty on petroleum products as the Minister of Mineral and Energy Affairs may see fit, (ii) price regulation of petroleum products, and (iii) the withholding from the public of information concerning petroleum products.

Levies on Fuel Proclamation, 1984, Proclamation No. AG 16, OG No. 4917, 22/06/84.

Comment: Provides for imposition of fuel levies on petrol and diesel.

6. Road Transportation

Road Transportation Act, 1977, Act No. 74, as amended by Acts No. 93 of 1979, No. 91 of 1980, No. 64 of 1981, No. 78 of 1982, No. 8 of 1983 and No. 97 of 1986.

Comment: RSA law, which is also applied to Namibia and is administered by DOT, except when referring to "the Republic", according to Proclamation AG 14 of 1978. This means, *inter alia*, that Namibian authority is limited by the

boundaries of the country and also limits the powers of RSA authorities in respect of road transportation within Namibia with the exception of the RSA National Transport Commission. No amendments passed by the RSA parliament are valid, and only the following "Namibian" amendments, are in force, together with the original Act. It provides for the economic regulation of road transportation.

Road Transportation Proclamation, 1978, Proclamation AG No. 31, OG 3749, 15/05/78.

Comment: Makes the principal act applicable in Owambo.

Road Transportation Amendment Act, 1980, Act No. 29, OG No. 4357, 30/12/80.

Comment: Abolishes racially discriminatory provisions in Act 74 of 1977.

Road Transportation Amendment Act, 1981, Act No. 18, OG 4570, 21/12/81.

Comment: Extends the exceptions made from the permit system for transporting labourers, and also alters vehicle capacities, etc.

Road Transportation Amendment Act, 1982, Act No. 16, OG No. 4722, 21/12/82.

Comment: Makes numerous amendments to permits and related conditions; also affects membership of the Local Road Transportation Board.

Road Transportation Amendment Proclamation, 1985, Proclamation No. AG 33, OG No. 5060, 15/06/85.

Comment: Changes certain definitions and procedures.

Road Transportation Amendment Act, 1988, Act No. 8, OG No. 5561, 21/06/88.

Comment: Extends taxi licences to cover the whole of local authority areas.

Second Road Transportation Amendmend Act, 1988, Act No. 20, OG No. 5650, 30/12/88.

Comment: Removes certain powers of the National Transport Commission; enables certain goods to be reserved for carriage by rail only; repeals certain provisions of Proclamation AG 33 of 1985.

Commencement of the Road Transportation Amendment Proclamation, 1985, Proclamation No. AG 60, OG No. 5848, 03/11/89.

Comment: Makes effective parts of Proclamation AG 33 of 1985.

Road Transportation Amendment Proclamation, 1989, Proclamation No AG. 61, OG No. 5849, 03/11/89.

Comment: To amend the principal act to provide for complete autonomy from South Africa, including (i) the establishment of a Road Transportation Commission of South West Africa to replace the National Transport Commission of South Africa, (ii) the establishment of a Road Transportation Board of South West Africa in lieu of the Local Road Transportation Board and (iii) the regulation that all road transport to, from and through Namibia require Namibian permits.

Road Transportation Act, 1977: Exempted Goods, Government Notice, No. AG 100, OG No. 5850, 03/11/89.

Comment: Lists goods for which a permit can be issued without a review of the need for the transport.

Road Transportation Act, 1977: Prohibition on consideration of certain applications for the granting or amendment of public permits or amendment of public permits or private permits, Government Notice, No. AG 101, OG No. 5851, 03/11/89.

Comment: Prohibits the issuance of new licenses, for the purpose of the conveyance of certain goods by the railway only, and lists 14 goods in respect of which applications for permits shall not be considered.

Commencement of the Road Transportation Amendment Proclamation, 1989, Proclamation No. AG 69, OG No. 5870, 29/11/89.

Comment: Makes effective Proclamation AG 61 of 1989; see above.

7. Maritime Affairs

Merchant Shipping Act, 1951, Act No. 57, as amended by Acts No. 30 of 1959 (as amended by Act No. 65 of 1981), No. 69 of 1962, No. 40 of 1963, No. 13 of 1965, No. 42 of 1969, No. 58 of 1970, No. 24 of 1974, No. 5 of 1976, No. 70 of 1977, No. 62 of 1978, No. 3 of 1981, No. 3 of 1982, No. 105 of 1983, No. 25 of 1985, No. 1 of 1986, No. 58 of 1987 and No. 3 of 1989.

Comment: RSA law also applied to Namibia, but administered from Pretoria, since it was excluded from the scope of Proclamation AG 14 of 1978. The amendments are also valid in Namibia.

Territorial Waters of South West Africa Proclamation, 1979, Proclamation No. AG 32, OG No. 4034, 07/11/79.

Comment: Extends territorial waters and fishing zone to 12 and 200 nautical miles, respectively.

Prevention and Combatting of Pollution of the Sea by Oil Act, 1981, Act No. 6, as amended by Act No. 63 of 1987.

Comment: RSA law not applied to Namibia. Its predecessor, Act 67 of 1971, applied to Namibia, but was administered by Pretoria, having been excuded from the scope of Proclamation AG 14 of 1978.

Carriage of Goods by Sea Act, 1986, Act No. 1

Comment: RSA law not applied to Namibia.

International Convention for the Prevention of Pollution from Ships Act, 1986, Act No. 2.

Comment: RSA law not applied to Namibia.

International Convention Relating to Intervention on the High Seas in Cases of Oil Pollution Causalities Act, 1987, Act No. 64.

Comment: RSA law not applied to Namibia.

8. Civil Aviation

Carriage by Air Act, 1946, Act No. 17, as amended by Act No. 5 of 1964, No. 81 of 1979 and No. 97 of 1986.

Comment: RSA laws also applied to Namibia, and administered by DOT except Section 5, which was excluded from the scope of Proclamation AG 14 of 1978. Amendments since 1978 do not apply to Namibia *de jure*, but apparently *de facto*. Gives effect to Warsaw convention of 1929.

Air Services Act, 1949, Act No. 51, as amended by Acts No. 6 of 1964, No. 43 of 1973 (Act No. 43 of 1973 was repealed by Act No. 94 of 1981) and No. 97 of 1986.

Comment: RSA laws also applied to Namibia, but administered by DOT except Section 2(2), and except Section 15 of the 1973 Amendment Act, having been excluded from the scope of Proclamation AG 14 of 1978. Amendments after 1978 do not apply to Namibia, *de jure*, but apparently *de facto*. Provides for licencing and control of air carrier and services.

Aviation Act, 1962, Act No. 74, as amended by Acts No. 12 of 1965, No. 55 of 1965, No. 83 of 1969, No. 10 of 1972, No. 62 of 1973, No. 63 of 1975, No. 64 of 1980, No. 63 of 1981, No. 4 of 1982, No. 1 of 1984, No. 97 of 1986 and No. 58 of 1987.

Comment: RSA laws also applied to Namibia and administered by DOT with the exception of Sections 3(1)(b), 3(2) and Section 12, relating to South African Aircraft outside of Namibia, having been excluded from the scope of Proclamation AG 14 of 1978. This Proclamation also amends Sections 2 and 5 of the principal Act. Amendments after 1978 do not apply to Namibia *de jure*, but apparently *de facto*. Gives effect to the Chicago Convention and Air Services Transit Agreement.

Aerodrome Ordinance, 1963, Ordinance No. 12, OG No. 2487, 28/06/63.

Comment: Sets out requirements for construction and maintenance of aerodromes. *NB.* The two state airports are governed by regulations under the Aviation Act of 1962.

Civil Aviation Offences Act, 1972, Act No. 10, as amended by Acts No. 29 of 1974, No. 63 of 1978 and No. 4 of 1981.

Comment: RSA law administered by DOT in terms of Proclamation AG 14 of 1978. Amendments after 1978 do not apply to Namibia, *de jure*, but apparently *de facto*. Gives effect to the Tokyo, Hague and Montreal Conventions of 1963, 1970 and 1971, respectively.

9. Posts and Telecommunications

Post Office Act, 1958, Act No. 44, as amended by Acts No. 80 of 1959, No. 76 of 1961, No. 50 of 1962 (repealed by Act No. 94 of 1981), No. 37 of 1963, No. 80 of 1965, No. 58 of 1966, No. 67 of 1968, No. 102 of 1969, No. 25 of 1970, No. 80 of 1971, No. 101 of 1972, No. 56 of 1973, No. 13 of 1974, No. 42 of 1974, No. 66 of 1974, No. 63 of 1975, No. 113 of 1976, No. 1 of 1978, No. 21 of 1980, No. 75 of 1981, No. 61 of 1982, No. 80 of 1982, No. 27 of 1983, No. 37 of 1984 and No. 7 of 1986.

Comment: RSA law also applied to Namibia and administered by DOPAT, with the exception of Section 54 of the Post Office Amendment Act of 1976, Act 113 of 1976, having been excluded from the scope of Proclamation AG 12 of 1978. Other exceptions were subsequently repealed by the Exchequer and Audit Amendment Proclamation of 1979; see below. Amendments passed after 1978 do not apply to Namibia. Basic law establishing and governing operations of the Department of Posts and Telecommunications.

Post Office Act Amendment Proclamation, 1979, Proclamation No. AG 6, OG No. 3904 22/02/79.

Comment: Makes RSA Post Office Amendment Act of 1978, Act No. 1 of 1978 applicable to Namibia.

Exchequer and Audit Amendment Proclamation, 1979, Proclamation No. AG 35, OG No. 4042, 29/11/79.

Comment: Transfers financial responsibility for DOPAT to the Directorate (now Department) of Finance in Windhoek; extends the scope of Proclamation AG 14 of 1978.

Post Office Amendment Act, 1985, Act No. 28, OG No. 5148, 18/12/85.

Comment: Clarifies the role of the Postmaster General regarding making and selling of stationary.

10. Walvis Bay

South-West Africa Affairs Act, 1922, Act No. 24.

Comment: Walvis Bay is to be administered as an integral part of Namibia.

The Walvis Bay Administrative Proclamation, Proclamation R. 202, GG No. 5731, 31/08/77.

Comment: Repeals Section 36 of RSA Act No. 39 of 1968. Walvis Bay is to be adminstered as part of the Cape Province.

11. Miscellaneous

Transport (Co-ordination) Act, 1948, Act No. 44, as amended.

Comment: RSA law also applied to Namibia. Establishes and defines the role of the National Transport Commission.

Railway Expropriation Act, 1955, Act No. 37.

Comment: RSA law, partially repealed in Namibia by Act 21 of 1987.

Municipal Ordinance, 1963, Ordinance No. 13, as amended, OG 2489, 29/06/63.

Comment: Provides for basic powers and responsibilities of local authorities.

Import and Export Control Act, 1963, Act No. 45, as amended.

Comment: RSA law also applied in Namibia.

Customs and Excise Act, 1964, Act No. 91, as amended

Comment: RSA laws also applied in Namibia.

Companies Act, 1973, Act No. 61, as amended.

Comment: RSA law also applied in Namibia.

Expropriation Act, 1975, Act No. 63.

Comment: RSA law, partially repealed in Namibia by Act 21 of 1987.

Exchequers and Audit Act, 1975, Act No. 66.

Comment: RSA law also applied to Namibia.

Rehoboth Self-Government Act, 1976, Act No. 56.

Comment: RSA law still in force, but currently under revision.

Expropriation Ordinance, 1978, Ordinance No. 13, OG No. 3796, 24/07/78.

Comment: Provides for expropriation and other property for public and certain other purposes.

12. Other Republic of South Africa laws not applied (any longer) in Namibia

Level Crossings Act, 1960, Act No. 41, as amended.

Comment: RSA law not applied to Namibia.

South African Transport Services Act, 1981, Act No. 65, as amended by Acts No. 6 of 1982, No. 13 of 1983, No. 5 of 1984, No. 93 of 1984, No. 44 of 1985, No. 46. of 1986.

Comment: RSA law repealed in Namibia by, *inter alia*, Act 21 of 1987.

South African Transport Services Finance and Accounts Act, 1983, Act No. 17, 1983.

Comment: RSA law repealed in Namibia by Act 21 of 1987.

APPENDIX 2. Central Revenue Fund: Development, Current Status and Short-term Prospects

1. Development of the Fund

The Central Revenue Fund (CRF) was established as the principal account of the central (first tier) government in Namibia, with effect from the 1980/81 financial year, when a government service distinct from that of South Africa was created. In effect, the CRF is the successor to the old South West Africa Account. The financial year runs from 1 April to 31 March.

The scope of activities embraced by the CRF has increased as additional functions have been assumed by central government. So, for example, transport was created as a separate first tier department only in July 1980; its expenditures and revenues therefore appear in the CRF only from the 1981/82 financial year.

Revenues: The following sources of government revenue accrue to the CRF:

(a) Revenue from own sources
- tax and duties;
- loan recoveries;
- licence fees;
- fines and forfeitures;
- departmental revenue from each of 15 departments; and
- customs and excise

(b) Revenue from other sources
- contributions by the South African government;
- contribution by Admin. for Whites;
- Amortization Fund for loan redemption; and
- loans raised through levies on companies, use of own funds, issuing of Development Bonds or short term effects.

Expenditures: The following expenditures are charged to the CRF:

Annual budget for 18 Votes, including both current and capital expenditure:
- each of 15 departments;
- assistance to second tier authorities;
- national intelligence; and
- improvement of service conditions.

Shortfall/surplus: Any shortfall not made good by increases in taxation or cuts in expenditure, must be covered by loans raised on commercial markets. In the past, additional contributions were also obtained from South Africa, but this is no longer possible (see below).

Development of the CRF over the last decade is illustrated in Table A2.1, showing actual revenue and expenditure until FY 1986/87, and estimated revenue and expenditure thereafter. Data for the latter are taken from published estimates released to accompany the annual budget speech; data for the former are derived from the Auditor-General's report on the accounts of the central authority. By their very nature, there is a lag of two years in publication of the audited figures, hence 1986/87 is the latest FY for which data are available.

Although both expenditure and revenue have increased steadily in money terms, the real value of revenue has fluctuated in accordance with economic conditions. So, during the drought and recession of the early 1980s, the economy contracted in real terms. Over the last three or four years, however, there has been marked real growth. This has sometimes resulted in actual revenues exceeding their forecast levels, and actual expenditures falling short of their budgeted levels. This has been the case with 1988/89.

Capital expenditure as a percentage of the total has ranged from 21.6% to 13% over the last 7 years. By contrast, the budgeted figure for 1989/90 is only 8.4%. This is cause for some concern, and is discussed further below.

2. Current Status

The healthy surplus shown in the latest audited accounts has been sharply reduced by events contingent upon implementation of UNSCR 435, in particular the reduced budgetary support from South Africa.

The 1989/90 budget is transitional in several ways which distinguish it from its predecessors:

(i) It was drawn up and presented by the Administrator General, who is the territory's legislative and executive authority. The National Assembly and its interim government, together with the second tier legislative assemblies for each ethnic group, were abolished ahead of the implementation of UNSCR 435.

(ii) The underlying rationale of the budget appears to be maintenance of the *status quo* within and between departments as far as possible, except where specific new expenditures are required. In other words, major new policy directions have been avoided.

(iii) South Africa has reduced its contribution from R 308 million last year to R 158.172 million this year. Included in this is R 78.172 million towards implementation of UNSCR 435, so the net contribution for budget support is only R 80 million, representing a decline of R 228 million.

(iv) In other respects, however, Namibia is not yet in a position to benefit from new international transfer payments (e.g. aid) contingent on independence.

(v) As stated above, a very low share (8.4%) is devoted to capital projects. Ongoing projects are generally continuing, but there is a virtual moratorium on new projects due to start this year. A few exceptions have been made e.g. for accelerated low income housing construction, to cater in part for returnees; and construction of the next phase of the Eastern National Water Carrier scheme.

Table A2.1 Revenue and Expenditure: Central Revenue Fund[1] (R million)

	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	Estimated 1987-88	Estimated 1988-89	Budget 1989-90
Taxes on Income and Property	72.3	55.4	107.3	165.9	293.9	395.1	415.4	451.6	524.0
Property Taxes	3.2	2.0	2.7	2.4	3.0	5.2	9.0	8.8	8.0
Taxes on Domestic Transactions	55.4	76.0	81.4	118.7	162.2	204.7	261.7	338.5	368.9
Taxes on International Trade	271.8	271.7	273.1	271.1	338.8	400.2	391.8	458.5	448.2
Sub-Total Tax Revenue	402.7	405.1	464.5	558.1	797.9	1005.2	1077.9	1257.4	1349.1
Non-Tax Revenue	53.1	86.6	91.9	119.5	172.8	215.6	211.4	284.4	204.8
TOTAL REVENUE BEFORE LOANS AND TRANSFERS	455.8	491.7	556.4	677.6	970.7	1220.8	1289.3	1541.8	1553.9
Wages	141.9	183.7	219.3	262.4	276.6	389.7			511.4
Goods and Services	116.0	145.2	149.1	159.8	271.0	380.2			300.1
Interest	15.1	37.9	62.8	112.9	118.9	113.3			129.4
Other Borrowing Costs	1.0	12.9	1.1	1.4	1.3	4.6			58.8
Transfers to Other Government	282.9	256.4	374.6	328.1	334.1	365.0			570.4
2nd Tier	(206.8)	(240.0)	(299.4)	(302.7)	(312.5)	(335.3)			(535.4)
3rd Tier	(76.1)	(16.4)	(75.2)	(25.4)	(21.6)	(29.7)			(35.0)
Other Transfers	100.1	107.8	70.2	93.3	171.3	132.9			245.8
Current	(46.7)	(88.3)	(58.1)	(80.1)	(149.4)	(113.2)			(—)
Capital	(53.4)	(19.5)	(12.1)	(13.2)	(21.9)	(19.7)			(···)
Other Capital Expenditure	121.9	93.3	98.6	131.3	100.4	92.8			174.4
TOTAL EXPENDITURES	778.9	837.1	975.7	1035.2	1273.6	1478.9	1750.9	1933.7[2]	1990.3
Deficit Before RSA Transfers (-)	-323.1	-345.4	-419.3	-357.6	-302.9	-258.1	-461.6	-391.9	-436.4
RSA Transfers (Budget Support)	214.0	215.0	285.0	318.0	318.7	469.2	308.0	313.8	158.2[3]
Deficit After RSA Transer (-)	-109.1	-130.4	-134.3	-39.6	15.8	211.1	-153.6	-78.1	-278.2
Loan Disbursements	(142.0)	(287.0)	(185.2)	(162.8)	(97.2)	(0.1)	(66.5)	(190.8)	(55.2)
Loan Redemptions	(0.1)	(0.1)	(20.5)	(48.9)	(88.6)	(47.0)	(61.2)	(110.4)	(224.1)
Net Borrowing	141.9	206.9	164.7	113.9	8.6	-46.9	5.3	80.4	-168.9
Change in Cash Balance (decline -)	32.8	76.5	30.4	74.3	24.4	164.2	-148.3	2.3	-446.1
Financing	109.1	130.4	134.3	39.6	-15.8	-211.1	153.6	78.1	278.2
Memorandum Items:				(IN PERCENT)					
Revenue/GDP	27.5	27.0	28.7	29.9	34.0	37.7	35.8	34.7	30.4
Expenditure/GDP	47.0	46.1	50.4	45.6	44.6	45.8	48.6	43.5	38.9
Deficit Before RSA Transfer/GDP	-19.5	-19.0	-21.6	-15.8	-10.6	-8.0	-12.8	-8.8	-8.5
Deficit after RSA Transfer/GDP	-6.6	-7.2	-6.9	-1.7	0.5	6.5	-4.3	-1.8	-5.4
GDP	1655.8	1815.4	1937.4	2269.8	2852.4	3231.9	3600.3	4443.6	5110.1

Source: UNDP (1989)

1) For the breakdown of expenditure, the budget column is not strictly comparable to previous years, where the wage bill had been adjusted to include the car financing scheme, contributions to persain funds, contributions to the medical and scheme, and improvements in conditions of service. Accordingly the budgeted wage bill for 1989-1990 is somewhat understated, with corresponding overstatements in other items. Aggregate expenditure is comparable for all years.

2) Partially estimated.

3) Includes R 78.2 for expenditure in connection with implementation of UNSCR 435.

Relevant features of the 1989/90 budget; Revenue

General:

(i) Revenue from General Sales Tax (GST) is to rise from R 205 million to R 254 million as a result of increased economic activity, but principally as a result of the rate of GST being increased from 9% to 10% on 1 July 1989.

(ii) Expected interest on investments (Item 23.02.02) has declined tenfold to only R 500,000, as a reflection of the greatly reduced surplus on the CRF available for investment.

(iii) According to the estimates, there is a shortfall of R 437 million in the total amount available for appropriation in relation to budgeted expenditure. However, this has been reduced by unexpected customs revenue (see below). In view of impending independence, the South African government has refused to guarantee further commercial loans to Namibia, thus restricting the amount raised on commercial markets to R 55 million via the issue of short term securities. All in all, according to the budget speech, a shortfall of R 213.6 million exists. Negotiations are underway for an overdraft facility with South Africa for R 80 million, which would still leave a difference of R 133.6 million. An appeal has been made both to the South African government and to the international community, neither of which is likely to step in at this stage. Therefore, a short term crisis certainly appears to exist.

Of particular relevance to this study:

(i) Revenue from the levy on fuel (item 22.01.12) is expected to rise considerably, from R 28 million to R 100 million, as a result of increases in the price of fuel (and presumably the rate of the levy). According to the 1989 budget speech, the R 28 million estimate for 1988/89 was too low; the outturn was approximately R 62.2 million on account of price increases.

(ii) DOPAT's revenue (item 23.11) will rise substantially, but the aggregate figure is not itemised.

(iii) Customs and Excise receipts from the SACU pool will be significantly higher than indicated in the printed estimates. It was revealed in the budget speech that recent revisions and modifications have increased Namibia's 1988/89 share by R 53.6 million over the previous revised estimate of R 394.2 million. At least this amount (R 447.8 million) is now expected in 1989/90.

Expenditure

General:

(i) The low level of capital expenditure reflects the financial stringency, and would represent a major cause for concern if carried forward into future years. However, if this proves to be only a one-off, the effects may be less serious than predicted by some sources. For example, many of the projects halted are expensive and justified on the basis of past policies and design standards. These may well be inappropriate to local conditions and out of line with what a future government would desire. In this respect, the current holding operation may prove to be rational capital conservation. Moreover, in the short term, especially given the additional demands being placed on infrastructure during implementation of UNSCR 435, maintenance of existing infrastructure (which forms a charge on current expenditure) is crucial. Some important maintenance work has been deferred in the past.

(ii) Current expenditure under all Votes includes the cost of implementing a 15% civil service salary increase. In addition, employer contributions to the Statutory Institutions Pension Fund, previously aggregated under the Finance Vote, have this year been listed separately in each Vote. These two factors explain many of the very large increases in staff-related expenditure.

(iii) The cost of loans (interest, loan costs and redemption) under the Finance Vote (Vote 02) are set to rise from R 170 million to R 412 million, as a result of greater recent reliance on this form of deficit financing, much of it via short term effects.

(iv) The department showing the greatest increases in expenditure is probably National Health and Welfare, which is expanding specialist, community and welfare services (Vote 08).

(v) Defence expenditure will decline for the first time in many years, from R 219.78 million to R 125.625 million. This represents probably the first major financial benefit of the end of the guerrilla war.

(vi) Assistance to representative authorities is being substantially increased. This is predominantly current expenditure, to cover increases in the value of pensions etc. and to compensate for the loss of income tax as a source of revenue. Although the legislative assemblies have been abolished, the respective bureaucracies continue to carry out their designated functions.

Of particular relevance to this study:

(i) DOPAT (Vote 11) is one of the few with increases in both current and capital expenditure.

(ii) DOT (Vote 12) will suffer a significant decline in capital expenditure, from R 51.3 million to R 38.2 million. Moreover, R 24.45 million of this amount is being used for the purchase of shares in TransNamib Limited (formerly NTC). Current expenditure will rise by some R 27 million to almost R 119.2 million. R 11.55 million of this is allocated as a subsidy on fuel for TransNamib, an item which did not arise in 1988/89.

(iii) The DOT continues to provide funds to the 4 large municipalities which exercise responsibility for traffic control within their boundaries on an agency basis.

3. Short-term Prospects

UNDP has prepared tentative short term projections for the CRF, which indicate that its deficit before external grants and transfers from South Africa will be in the range of 5-6% of GDP (around USD 90 million per year) through 1991-92, assuming no change in the present external environment, and continuation of the present system of public administration. These estimates also assume that the amounts currently received by Namibia from the SACU countries in lieu of customs duties on imports will be maintained at approximately the current levels, and that the future gross lending of commercial banks to Namibia will be approximately equal to the amortization payments due to them each year.

The precariousness of Namibia's present fiscal situation is highlighted by Table A2.2. The reader is referred to the UNDP study (ref. 72) for an analysis of alternative approaches to rectify the situation.

Table A2.2 Central Revenue Fund: Projections (R million)

	1988-89	Budget 1989-90	Projected 1989-90	Projected 1990-91	Projected 1991-92
			(In millions of Rands)		
Taxes on Income and Property	460.4	532.0	674.0	721.1	752.5
Taxes on Domestic Transactions	338.5	368.9	422.5	458.5	486.6
Taxes on International Trade	458.5	448.2	507.0	565.3	621.9
Non-Tax Revenue	284.4	204.8	255.0	286.0	320.5
Total Revenue	1541.8	1553.9	1858.5	2030.9	2181.5
Total Expenditure	1933.7	1990.3	2099.4	2318.0	2564.0
DEFICIT BEFORE RSA TRANSFERS (-)	-391.9	-436.4	-240.9	-287.1	-382.5
RSA Transfers	313.8	158.2	158.2	—	—
DEFICIT AFTER RSA TRANSFER (-)	-78.1	-278.2	-82.7	—	—
Loan Disbursements	190.8	55.2	—	—	—
Loan Redemptions	110.4	224.1	224.1	—	—
Net Borrowing	80.4	—168.9	—	—	—
Change in Cash Balance (reductions)	2.3	-446.1	—	—	—
Financing	78.1	278.2	82.7	—	—
Memorandum Items:			(IN PERCENT)		
Revenue/GDP	34.7	38.4	36.4	35.5	34.0
Expenditure/GDP	43.5	38.9	41.1	40.5	40.0
Deficit/GDP	8.8	8.5	4.7	5.0	6.0
GDP	4443.6	5110.1	5110.1	5723.3	6410.1

Source: UNDP (1989)

APPENDIX 3. Functions of Government in the Transport and Communications Sectors

This appendix lists functions normally performed by government, including parastatal companies, in the two sectors. The administration responsible for a particular function - at the end of 1989 - is indicated within brackets. NAM refers to Windhoek and RSA to Pretoria, etc.

1. General Government Affairs

Policy formulation (NAM with RSA assistance)

Preparation of laws, ordinances and regulations (NAM with RSA assistance, including RSA consultants)

Budgeting, accounting and auditing (NAM)

Performance auditing (NAM)

Hire and discharge of staff (NAM)

Liaison with industry, operators, trade unions and transport users (NAM).

2. Roads

Regulatory functions

Control of building restrictions and advertising along public roads (DOT)

Control of the crossing of other services (cables, pipes, etc.) over and under public roads (DOT)

Expropriation (DOT)

Operational functions

Road planning (DOT)

Feasibility studies (DOT, also with the assistance of private firms)

Survey and design works (DOT, also with the assistance of private firms)

Design standards (DOT)

Construction of roads and bridges (DOT, also with the assistance of private firms)

Maintenance of roads and bridges (DOT)

Procurement of consulting services, contractor services and equipment (DOT)

Maintenance of equipment (DOT, also with the assistance of private firms)

Materials research (DOT)

Miscellaneous

Management systems, records and statistics (DOT)

Manpower development and training (NAM; partly done by DOT)

Administration of laws (DOT)

3. Road Traffic and Transport

Regulatory functions

Licencing of commercial vehicles for private use and for hire and reward (Road Transportation Board; DOT)

Licencing of drivers and instructors (DOT)

Traffic control (DOT)

Road worthiness certification (DOT)

Road taxation and user charges (partly set and collected by NAM, partly by RSA)

International liaison and agreements (DOT for Botswana and RSA, otherwise RSA)

Regulation of tariffs for taxi, bus and goods vehicle operations (Road Transportation Board; DOT)

Road transport policy and regulation (NAM)

Operational functions

Road safety (DOT)

Registration of vehicles (DOT)

The setting of licence fees (DOT, to be approved by the Cabinet)

Miscellaneous

Records and statistics (DOT)

Manpower training and development (DOT)

Administration of laws (DOT)

4. Maritime Affairs

Regulatory functions

Sea worthiness certification and registration of vessels (RSA)

Personnel licencing and registration (RSA)

Marine pollution prevention and control (RSA; not provided on the Namibian coast)

Liaison with other states and international organisations (RSA)

Regulation and competition (RSA)

Operational functions

Accident investigation (RSA)

Search and rescue services (RSA; Not provided on the Namibian coast. The National Sea Rescue Institute, a private organisation, provides rescue services within the Walvis Bay harbour area)

Establishment and maintenance of navigational aids (TNL, except Walvis Bay, where SATS responsible)

The setting of charges for maritime services (navigational aids and entrance channels) (TNL for Lüderitz and SATS for Walvis Bay, but TNL uses the same charges for all port and maritime activities as set by SATS)

Harbour dredging (TNL for Lüderitz and SATS for Walvis Bay)

Maritime radio telecommunications (SAPT for Walvis Bay, with a repeater at Lüderitz operated by DOPAT).

Port control and sea line traffic control systems (Not applicable)

Coast guard services (NAM through the Directorate of Sea Fisheries for fishery protection, and RSA but none provided on the Namibian coast, except for the South African Navy in the Walvis Bay harbour area)

Pilotage (TNL for Lüderitz and SATS for Walvis Bay)

Miscellaneous

Records and statistics (RSA)

Manpower tranining and development (RSA)

Administration of laws (RSA)

5. Civil Aviation

Airport functions (operational)

Planning of the airport network (DOT)

Planning and design of airports (DOT, with the assistance of consultants)

Construction of airports (DOT and the Department of Civic Affairs and Manpower, with the assistance of contractors)

Operation of airports (DOT; some smaller airports are municipal, private or administered by other Namibian administrations)

Operation of crash and rescue services (DOT)

Maintenance of airports, runways, aprons, etc. (DOT)

Maintenance of airport buildings (NAM; Department of Civic Affairs and Manpower)

Installation and maintenance of electric and electronic equipment (DOT)

Maintenance of vehicles and machines (DOT)

Passenger and freight handling and handling of aircraft and vehicles on the apron (Airlines and operators)

Flight safety functions (regulatory)

Establishment of flight standards (RSA)

Monitoring of adherence to prescribed standards by inspection of aircraft, air worthiness, airports, flight operations and airport operations (RSA)

Licencing of aircraft, maintenance and repair shops, airports, airlines and aviation personnel (RSA)

Accident and incident investigation (RSA)

Flight calibration of navigational aids (RSA)

Air navigation functions (operational)

(Include air traffic control, flight information, search and rescue, communication, navigation, aeronautical information, and meteorological services)

General planning of the air navigation services (DOT)

Operation of the air navigation services (DOT; the Regional Search and Rescue Coordination Centre is at Cape Town)

Calculation and approval of approach and departure routes and procedures (RSA)

Production of the Aeronautical Information Publication (AIP) and aeronautical maps (RSA)

Air transport functions (regulatory)

International co-operation and co-ordination, i.e. bilateral and multilateral agreements, concessions for international flights, ICAO, etc. (RSA)

Administration of laws (DOT and RSA)

Overall planning of and policy formulation for the sector (NAM)

Commercial regulation of air transport, including regulation of scheduled and non-scheduled air services, the setting and enforcement of tariffs and facilitation thereof (RSA)

Miscellaneous

Manpower development (RSA for formal training; on-the-job by DOT)

Records and statistics (DOT)

Charges for airports, en route services, etc. (DOT to be approved by the Cabinet)

6. Railway and Ports (excl. Walvis Bay)

Regulatory functions

Regulation of competition (NAM)

International liaison and agreements (TNL)

Expropriation (TNL)

Operational functions

Planning, design and construction of facilities (TNL; construction of new facilities to be approved by the Cabinet, construction works done with the assistance of contractors)

Planning of operations (TNL)

Standard setting for operations, maintenance and construction (TNL)

Maintenance and operations of facilities (TNL; some services bought from SATS and contractors)

Setting of rates and charges (TNL)

Marketing and sales (TNL)

Billing and collection (TNL, with assistance of SATS)

Accounting (TNL)

Management information systems, records and statistics (TNL, with assistance from SATS)

Borrowing and financial management (NTC; share issues to be offered first to the Cabinet)

7. Posts and Telecommunications

Regulatory functions

Frequency management (DOPAT)

Licencing of radios (DOPAT)

Regulation of competition (NAM)

Setting of tariffs (DOPAT, to be approved by the Cabinet)

Expropriation (DOPAT)

Operational functions

Planning and construction of facilities (DOPAT, with the assistance of the Department of Civic Affairs and Manpower in case of buildings)

Procurement (DOPAT)

Setting of standards for construction, equipment, operations and maintenance (DOPAT)

Maintenance and operations of facilities and services (DOPAT; in case of buildings the Department of Civic Affairs and Manpower)

Marketing and sales (DOPAT; private companies for telephones, PABX and fax machines)

Billing and collection (DOPAT)

Accounting (DOPAT)

Management systems, records and statistics (DOPAT)

Miscellaneous

International liaison and agreements (DOPAT in case of the RSA, otherwise RSA)

Administration of post office laws (DOPAT)

Manpower development (DOPAT)

APPENDIX 4. Structure of taxes on Liquid Fuel Products in Namibia (mid-1989)

1. Types of liquid oil products

Petrol:	Research Octane Number 93
Diesel:	100 per cent distillate fuel, with low sulphur content (0.49% of mass)
Avgas:	Avgas 100 for high-compression aviation piston engines
Avtur:	Jet A1 kerosene fuel for gas turbine engines
Power Paraffin:	Paraffin used as fuel
Illuminating Paraffin:	Kerosene or burning oil
LPG:	Liquified Petroleum Gas

2. Customs, excise duties and levies

2.1 Customs (South African Customs and Excise Act, Act No. 91 of 1964, as amended).

Comment: The money is paid into the common pool of the Southern African Customs Union, which is administered as part of the Consolidated Revenue Fund of South Africa.

Ordinary duties:

Petrol:	0.091 c/l
Diesel Fuel:	0.183 c/l
Others:	0

Specific and ad volarem excise and customs duties:

Petrol:	3.909 c/l
Diesel Fuel:	3.817 c/l
Others:	0

2.2 Levy on Petrol and Distillate Fuel (Proclamation AG 16 of 1984) and Sales Tax (Proclamation AG 40 of 1978).

Comment: The money is paid into the CRF. It is not possible to separate the two items, but it is believed that the levy is about 22 c/l for both petrol and diesel:

Petrol:	31.8090 c/l
Diesel Fuel:	31.2170 c/l
Others:	0

2.3 Central Energy Fund (South African Energy Fund Act; Act No. 38 of 1977, as amended).

Comment: The money is paid into this fund by virtue of this Act as well as other acts and in particular the Petroleum Products Act (South African Act No. 120 of 1977). The Central Energy Fund is, *inter alia*, used to finance the Multilateral Motor Vehicle Fund (South African Act No. 93 of 1989; third party insurance) as well as the National Road Safety Council (South African Act No. 9 of 1972, as amended). The Fund is managed by CEF (Pty.) Ltd.

Petrol:	3.60 c/l
Diesel:	2.10 c/l
Others:	0

2.4 Equalization Fund (Energy Fund Act, Act No. 38 of 1977, as amended).

Comment: Money may, *inter alia*, be paid into this Fund by virtue of the Petroleum Products Act (Act No. 120 of 1977) as well. The Fund shall be used "for the financing of any increase in the cost of purchasing crude oil or petroleum products" or for research in connection with petroleum products. The fund is controlled by CEF (Pty.) Ltd.

Petrol:	7.00 c/l
Diesel:	7.00 c/l
Avgas:	5.70 c/l
Avtur:	9.00 c/l
Power Paraffin:	9.00 c/l
Illuminating Paraffin:	7.00 c/l
LPG:	6.40 c/l

3. Current price structure of 93 octane petrol in Windhoek

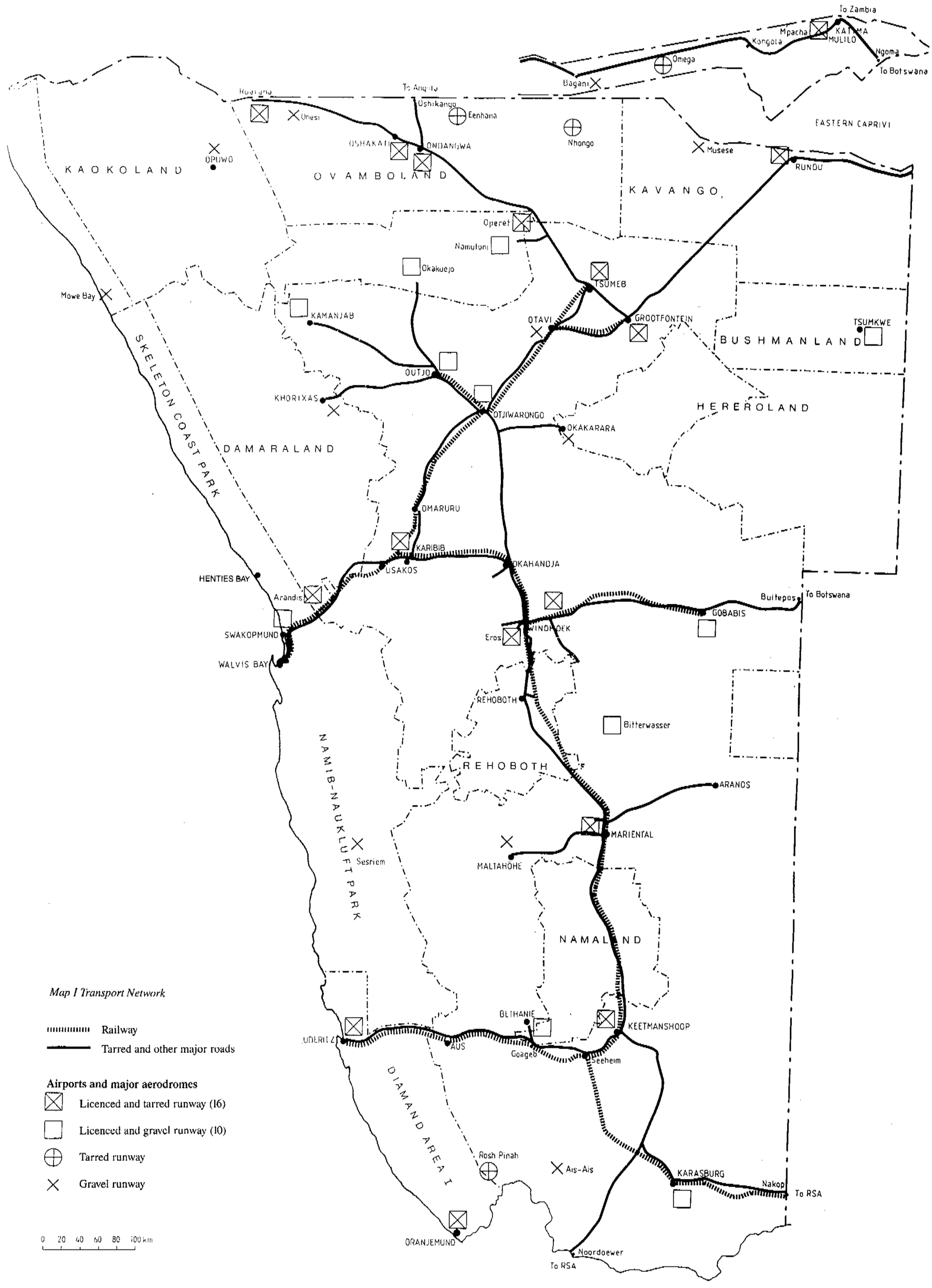
	cents/litre
Landed cost	40.842
Fuel tax	31.900
Service differential	2.400
Customs duties	4.000
Equalization Fund	7.000
Central Energy Fund	3.600
Wholesale margin	5.558
Retail margin	8.700
Transport to Windhoek	5.800
Slate differential	0.200
Windhoek pump price	110.000

NB: (1) Oil companies under-recovered on landed costs in July 1989 by 7.218 c/l.

(2) Slate differential is an adjustment, and goes to the state.

(3) Landed price in South Africa is currently 45.942 c/l; this increase may apply to Namibia in the near future to eliminate the under-recovery.

(4) Service differential represents additional transport costs from South Africa to Namibia.



Map I Transport Network

Railway

Tarred and other major roads

Airports and major aerodromes

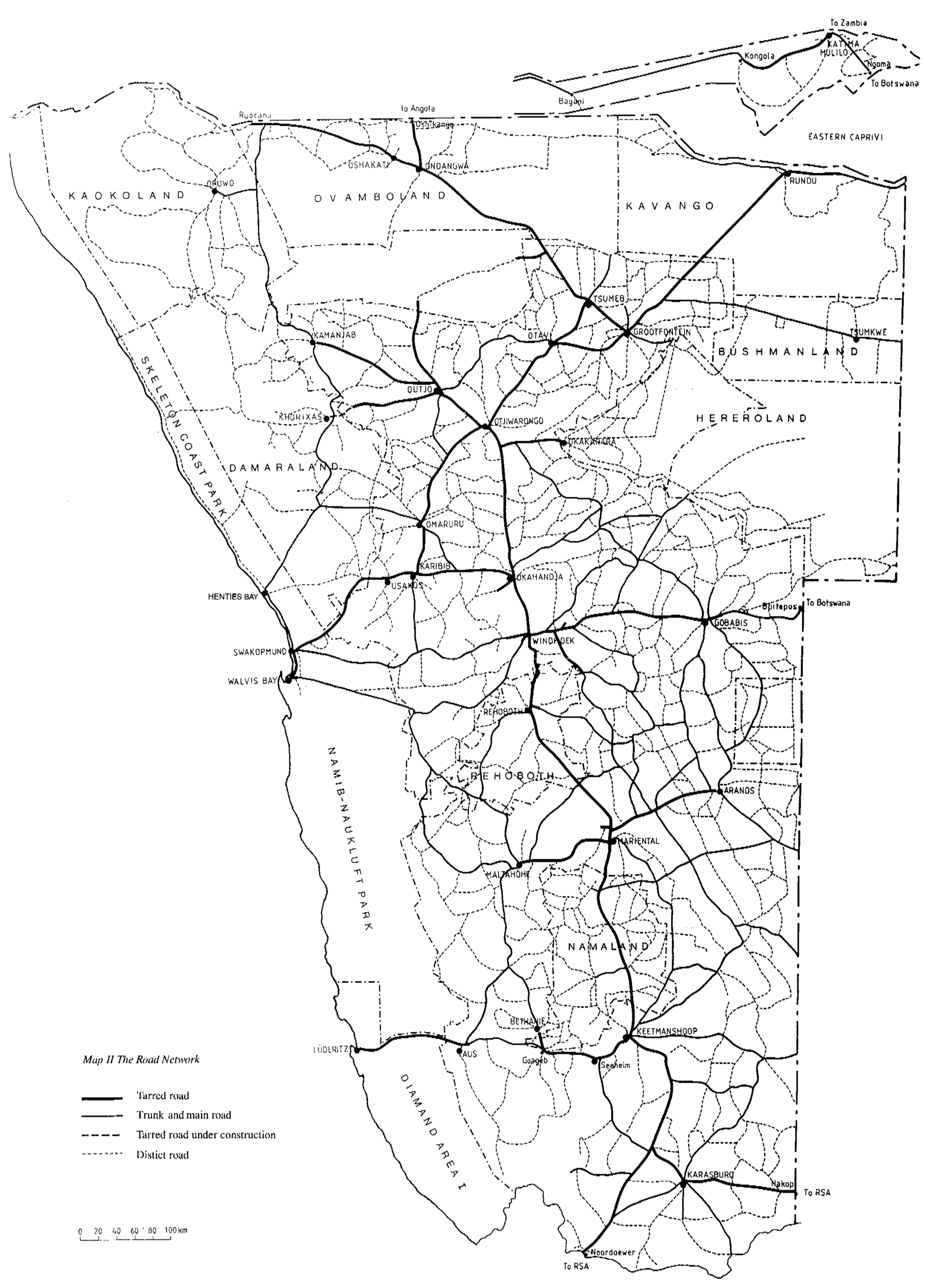
Licenced and tarred runway (16)

Licenced and gravel runway (10)

Tarred runway

Gravel runway

0 20 40 60 80 100 km



Map II The Road Network

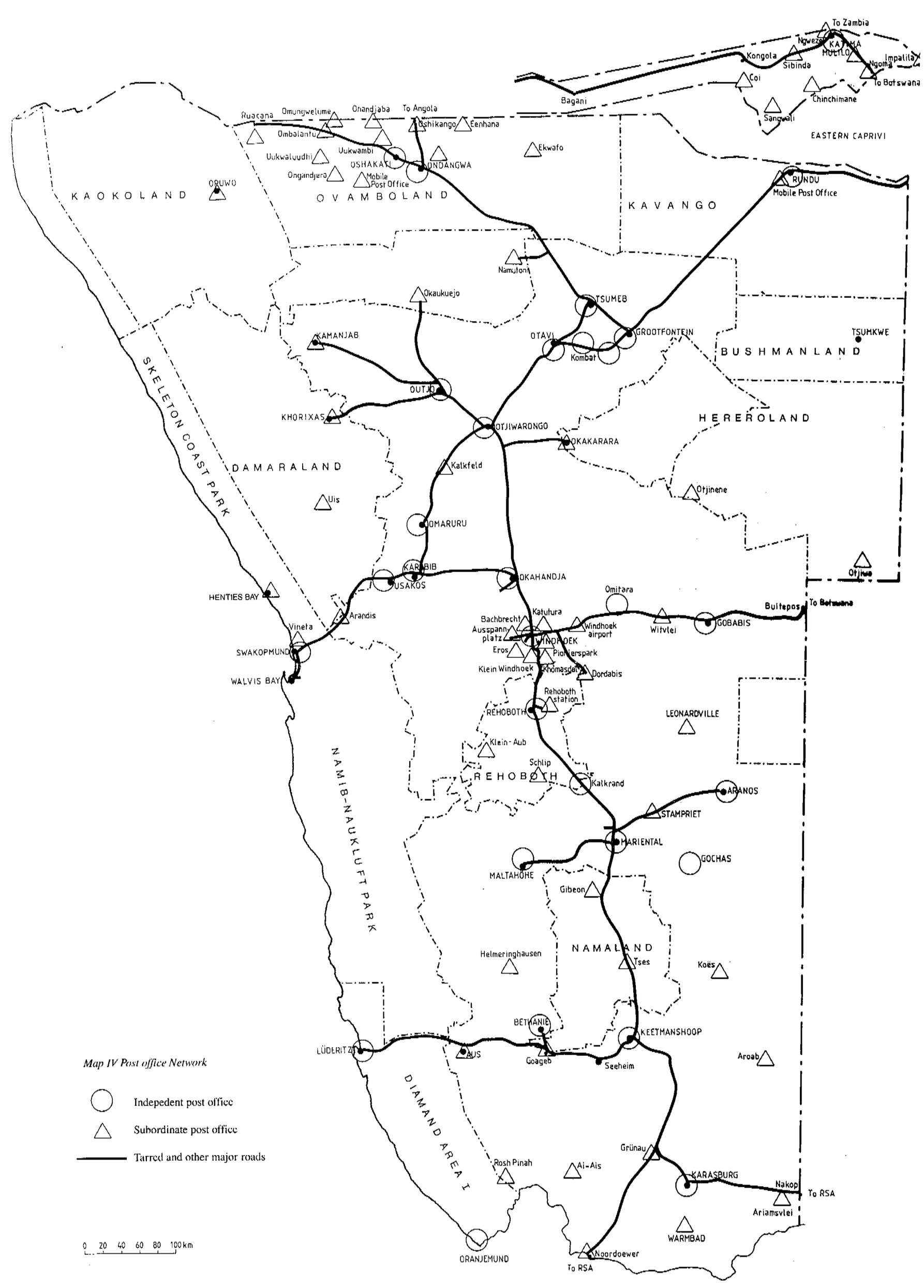
- Tarred road
- Trunk and main road
- Tarred road under construction
- Distict road

Map III Telecoms Network

- Microwave link
- Electromechanical exchange
- Manual exchange
- Digital exchange
- Digital concentrator
- Tarred and other major roads
- Y UHF radio link

0 20 40 60 80 100 km

To Zambia
KATIMA MULILO
Kongola
Ngoma
To Botswana
Bagani
Ruacana
To Angola
Oshikango
EASTERN CAPRIVI
OSHAKATI
ONDANGWA
OPUWO
KAOKOLAND
OVAMBOLAND
KAVANGO
RUNDU
TSUMEB
GROOTFONTEIN
TSUMKWE
BUSHMANLAND
KAMANJAB
OTAVI
OUTJO
KHORIXAS
SKELETON COAST PARK
OTJIWARONGO
OKAKARARA
HERERO LAND
DAMARALAND
OMARURU
KARIBIB
OKAHANDJA
USAKOS
HENTIES BAY
Buitepos
To Botswana
GOBABIS
SWAKOPMUND
WINDHOEK
WALVIS BAY
REHOBOTH
NAMIB-NAUKLUFT PARK
REHOBOTH
ARANOS
MARIENTAL
MALTAHÖHE
NAMALAND
BETHANIE
KEETMANSHOOP
LÜDERITZ
AUS
Goageb
Seeheim
DIAMAND AREA I
KARASBURG
Nakop
To RSA
Noordoewer
To RSA



Map IV Post office Network

Indepedent post office

Subordinate post office

Tarred and other major roads

0 20 40 60 80 100 km

Production: SWECO and VBB Teknikinfo. Stockholm 1990