

**Report No. 10543-EAP**

# Pacific Islands Transport Sector Study

(In Seven Volumes) Volume III: Fiji — Transport Sector Survey  
March 1993

Infrastructure Operations Division  
Country Department III  
East Asia and Pacific Region

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## **ACRONYMS AND ABBREVIATIONS**

<b>ADB</b>	-	<b>Asian Development Bank</b>
<b>AIDAB</b>	-	<b>Australian International Development Assistance Bureau</b>
<b>CAD</b>	-	<b>Civil Aviation Department</b>
<b>CAAF</b>	-	<b>Civil Aviation Authority of Fiji</b>
<b>CPO</b>	-	<b>Central Planning Office</b>
<b>GOF</b>	-	<b>Government of Fiji</b>
<b>MIPU</b>		<b>Ministry of Infrastructure and Public Utilities</b>
<b>NIA</b>	-	<b>Nadi International Airport</b>
<b>PAF</b>	-	<b>Port Authority of Fiji</b>
<b>PITSS</b>	-	<b>Pacific Islands Transport Sector Study</b>
<b>PMCs</b>	-	<b>Pacific Island member countries</b>
<b>PWD</b>	-	<b>Public Works Department</b>
<b>RTD</b>	-	<b>Road Transport Department</b>

**PREFACE**

The Pacific Islands Transport Sector Study (PITSS) reviews the status of the transport sectors in the six Pacific Island member countries (PMCs) of the World Bank.

The PITSS is reported in two volumes: Volume One - A Regional Perspective on Transport Issues - presents an analysis of transport issues across the region. Volume Two - Country Surveys - provides a detailed examination of the transport sector in each PMC.

This survey of the transport sector in Fiji, is one in the series for the PMCs which, as a whole, represent Volume Two. Each sector survey presents an overview of transport, identifies areas of concern and suggests priorities for consideration by Government.

The PMCs share several areas of common concern with their transport sectors, including strategic planning, project evaluation, regulation, modal coordination, pricing and cost-recovery, commercialization, private sector participation, as well as the management of infrastructure and its maintenance. These areas are reviewed briefly in this survey and, on the basis of the surveys for all PMCs, subjected to comparative analysis in Volume One of this study.

PITSS was undertaken by the World Bank with financial support for consultants from the Australian International Development Assistance Bureau (AIDAB) South Pacific Facility. The study was structured and managed by Colin Gannon (Senior Economist). Major contributions to the sector surveys were made by David Bray and Ian Gordon (consultants).

The kind cooperation of the many government officials and industry representatives who assisted the mission is gratefully acknowledged.

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CHART International Air Services

MAP IBRD No. 24572

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## **SELECTED DATA**

### **FJI**

#### **Geography**

<b>Land Area</b>		<b>18,272 sq km</b>
<b>Sea Area</b>	<b>1,290,000 sq km</b>	

#### **Population**

<b>Population (1990)/(1991), est.</b>	<b>732,000/744,000</b>
<b>Population Growth (1980-87)</b>	<b>1.9% per annum</b>
<b>Population Density (1990)</b>	<b>40 persons per sq km</b>
<b>Population of Capital, Suva (1991) est.</b>	<b>170,000</b>

#### **Economic**

<b>GDP/Capita (1990)/(1991)</b>	<b>US\$1,770/US\$1,830</b>
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#### **Exchange Rates:**

<b>1980</b>	<b>F\$0.8175 = US\$1.00</b>
<b>1985</b>	<b>F\$1.1526 = US\$1.00</b>
<b>1989 (September)</b>	<b>F\$1.4925 = US\$1.00</b>
<b>1991 (March)</b>	<b>F\$1.4987 = US\$1.00</b>

#### **Transport**

<b>Registered Vehicles (1988)</b>	<b>71,408</b>
<b>Vehicles/'000 Population (1988)</b>	<b>97</b>
<b>Length of Road (1991)</b>	<b>4,994 km</b>
<b>% of Road Sealed (1991)</b>	<b>15.7%</b>

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# CHAPTER 1

## INTRODUCTION

### A. REVIEW CONTEXT

1.1 This country survey presents an overview of the transport sector in Fiji, identifies areas of current and emerging concern, indicates priorities, and suggests future strategies for the sector.<sup>1</sup>

1.2 To facilitate the present study, a desk review<sup>2</sup> of the transport sector was previously undertaken for each of the Pacific Member Countries (PMCs) of the Bank.<sup>3</sup> That review provided preliminary information on each country, including Fiji, and working hypotheses on development needs in the transport sector. The present survey builds on this work to develop a current sector overview so as to establish first, directions for the formulation of strategies and priorities for each country, and second, the basis for selection of the specific issues addressed in Volume One of this Report.

1.3 The survey of Fiji is complemented with similar surveys for the other PMCs. A regional overview which compares and contrasts transport sector issues across all six PMCs is presented as Part I, Volume 1 of this Report.

### B. GEOGRAPHY

1.4 The Republic of Fiji is an archipelago of 330 islands, about 100 of which are inhabited. Most islands in the country lie within a region about 450 km from east to west and 400 km from north to south. Fiji has a land area of

18,272 km<sup>2</sup>, the third largest country in the South Pacific after Papua New Guinea and the Solomon Islands. It is 1,500 km from Australia and New Zealand, its largest trading partners (see map at end of text).

1.5 The largest islands in Fiji are volcanic in origin. There is a distinct contrast between the windward, eastern side of the major islands and their western sides: the former enjoy regular to heavy rainfall and are well endowed with tropical rainforest and thick vegetation, while the latter are in a rain shadow, and are dry and generally treeless. Pine plantations have been developed in the western areas, and the productive lowland areas are extensively cultivated for sugar.

1.6 Fiji has a sea area of 1,290,000 km<sup>2</sup>. The country is subject to both tropical cyclones and droughts.

### C. DEMOGRAPHY

1.7 The population of Fiji was estimated at 732,000 in 1990. The overwhelming majority (94 percent in 1986) of the population live on the two main islands, Viti Levu (about three-quarters) and Vanua Levu (about one-fifth). Thirty-nine percent of the total population was classified as urban. Viti Levu is the most urbanized island (almost one-half of its population living in urban areas; the average degree of urbanization in the remainder of the country was 13 percent. Suva was the largest

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town in 1986, with a population of 141,000 (excluding nearby contiguous settlements); the next largest towns were Lautoka (39,000) and Labasa (16,500).

1.8 The present annual population growth rate is 1.4 percent, a decline on the 1.9 percent annual growth between the 1976 and 1986 censuses. The labor force is increasing by 3.2 percent per annum, primarily because of increasing participation by women in the labor force.

1.9 Emigration from Fiji rose sharply following the coups d'etat in 1987. According to the Fiji Bureau of Statistics, about 7 percent of professional staff and 17 percent of administrative staff, who were employed at the time of the census in 1986, had left the country by late 1988. Key professions were affected, with 40 percent of accountants and many engineers, architects and technical staff reported to have emigrated.

#### D. ECONOMY<sup>4</sup>

1.10 Fiji is a middle income country. Its GNP per capita was severely affected by the political events of 1987, decreasing from US\$1,730 in 1986 to US\$1,540 in 1988 but rising to US\$1,770 in 1990. Fiji has placed considerable emphasis on health and education activities, and social indicators are generally superior to Asia and to lower middle income countries.

1.11 Economic activity in Fiji is diverse. *Agriculture* accounted for a quarter of GDP in 1987, of which 40 percent was attributable to the sugar growing industry based on internationally competitive smallholder farming. Fisheries, forestry and other agriculture grew more rapidly than sugar cane agriculture during the 1980s.

1.12 *Manufacturing* accounted for 12 percent of GDP in 1987. Again, much of the activity is attributable to sugar-related activities (31 percent in 1987). As with agriculture, non-sugar manufacturing grew more rapidly than sugar-related activity during the 1980s. There has been considerable growth in manufacturing for export, mostly garments spurred by preferential access to Australian, New Zealand, EC and US markets. Fish canning, timber processing and cement production are other major industrial activities. The production of coconut oil almost halved between 1985 and 1989, while gold production more than doubled.

1.13 *Tourism* is a major industry which grew rapidly up to 1987 when it suffered a major reversal. It has since resumed its growth pattern and a record number of tourist arrivals was achieved in 1990. However, arrivals fell back 6.9 percent in 1991 primarily, it is believed, due to recession conditions in Australia and New Zealand.

1.14 *Official development assistance* was increasing during the mid-1980s, but declined in 1987 following the coups d'etat. Assistance jumped by a half in 1988 to US\$54.3 million (US\$75 per capita, and 5 percent of GDP). Bilateral aid accounted for 87 percent of this assistance, a lower share than in other South Pacific countries, reflecting Fiji's relatively greater capacity to borrow. Foreign grants reflected in the government's budget were only F\$22.2 million (US\$15.9 million) in 1988; considerable aid to Fiji flows outside the government's development budget—assistance in kind is noted in the budget but not incorporated.

## CHAPTER 2 INSTITUTIONAL STRUCTURE

### A. GOVERNMENT STRUCTURE

2.1 Following ninety-six years as a British colony, Fiji gained independence in 1970. In 1987 Fiji left the Commonwealth to become a republic. The Governor General became the President, and ministers were appointed by him. The judiciary retained their independence.

2.2 Suva is the capital and administrative center of Fiji. The country is divided into four Divisions, each with a Divisional Commissioner based in; Nausori (Central Division), Levuka (Eastern Division), Lautoka (Western Division), and Labasa (Northern Division). The local government system is based on fourteen provinces, and is responsible for matters such as village development, local development priorities and rural health. The Minister of Fijian Affairs coordinates provincial activities and is responsible for financial supervision.

2.3 Administration and operation of government services within the transport sector in Fiji are provided primarily by two ministries of the national government: the Ministry of Tourism, Civil Aviation and Energy (aviation)<sup>5</sup> and the Ministry of Infrastructure and Public Utilities (land transport and maritime).<sup>6</sup> It is the responsibility of the ministries to undertake planning activities, and submit project proposals through the normal budgeting process. However, their planning resources are limited. The Central Planning Office (CPO) in the Ministry of Finance reviews and integrates investment proposals. It also formulates broad

policies and plans to guide sectoral agencies in their planning. Statutory authorities own and operate the principal airport and ports. A number of other government agencies are involved in road development. Agency responsibilities are summarized in Table 2.1.

### B. TRANSPORT AGENCY RESPONSIBILITIES

2.4 **Roads.** The planning, construction and maintenance of most roads is the responsibility of the Public Works Department (PWD) in the Ministry of Infrastructure and Public Utilities (MIPU). The PWD has its own road construction and maintenance resources, but makes limited use of contractors on occasion. A number of other government agencies are also involved in road development, including:

- (a) Ministry of Primary Industries and Cooperatives which has road development programs for agricultural access roads and for some area development projects. Its annual road construction budget has been in the order of F\$4 million. Construction is usually undertaken by the PWD.
  - (b) Ministry of Forestry, which has its own small road construction unit but uses PWD for larger projects. Funding is provided mostly by the government, but forestry companies also contribute to construction costs.
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**Table 2.1: FIJI—TRANSPORT AGENCY RESPONSIBILITIES, 1991 /a**

	Land	Maritime	Aviation	Inter-Modal
Policy	MIPU, CPO	MIPU, CPO	MTCAE, CPO	CPO
Infrastructure Planning	PWD	PAF, PWD	CAAF, CAD	CPO
Construction and Maintenance	PWD, (Private)	PAF, Private PWD	CAAF, PWD, Private	-
Operation of Facilities	-	PAF	CAAF	-
Provision of Transport Services	Private	MD, FMF, Private	Private	-
Regulation	PLA, TCB, CTA, Police	MD, PIB	ATLB	-
Legislation	RTD	MD	CAD	-

- ATLB Air Transport Licensing Board (in CAD)  
 CAAF Civil Aviation Authority of Fiji  
 CAD Civil Aviation Department (in MTCAE)  
 CPO Central Planning Office (in MOF)  
 CTA Central Traffic Authority (in DRT)  
 FMF Fiji Military Forces  
 MD Marine Department (in MIPU)  
 MIPU Ministry of Infrastructure and Public Utilities /a  
 MOF Ministry of Finance  
 MTCAE Ministry of Tourism, Civil Aviation and Energy /a  
 PAF Ports Authority of Fiji  
 PIB Prices and Incomes Board  
 PLA Principal Licensing Authority (in DRT)  
 PWD Public Works Department (in MCTW)  
 RTD Road Transport Department (in MIPU)  
 TCB Transport Control Board (in DRT)

/a Several Ministries have involved recent (1992) changes in name; see footnotes 5/ and 6/ above.

Source: Mission consultations.

- (c) **Ministry of Rural Development and Rural Housing, which receives occasional, small grants for road construction which is generally undertaken by the PWD.**
- (d) **Ministry of Housing and Urban Development, through its Housing Authority which provides roads and services in developing urban areas using grants and internally-generated revenue.**
- (e) **City and Town Councils which develop and maintain local roads using their own construction and maintenance units, PWD or contractors.**
- (f) **Fiji Sugar Corporation which develops roads in sugar growing areas using PWD and contractors.**

**2.5 The PWD is responsible for maintenance of all public roads built to PWD standards, including public roads built by these other agencies.**

**2.6 Land Transport Operations.** The road transport industry is primarily a private sector activity. Public transport is provided by licensed, privately-owned buses and taxis. Taxis are mostly individually owner-operated, but some fleet operations exist in towns. Taxi fares are also regulated, but by the CTA. All taxis are required to operate from a designated base. Taxi driver wages are low although some entry impediments appear to prevail. Scheduled bus services are provided within towns and on intercity and rural routes. Buses must obtain route licenses and charge regulated fares. Several operators may be granted licenses for a single route where passenger traffic is sufficiently high, for example, Suva - Nadi. In round numbers, about 1,100 buses are operated on some 100 routes by about 100 operators. Freight transport is mostly privately-owned, with a large number of small operators. In areas not served by scheduled bus services, truck

operators can obtain licenses to carry passengers at negotiated fares. An increasing number of light goods vehicles are used for these services, but conflicts have arisen as they have encroached on areas served by scheduled bus services, particularly in urban areas. The bus and taxi industries have been experiencing financial difficulties, in part because of tariff regulation.

**2.7 Three statutory agencies of the Road Transport Department (RTD) of the MIPU control and regulate road transport: the Principal Licensing Authority, the Transport Control Board and the Central Traffic Authority. The basis for the regulation is to ensure regular, safe and cost-efficient transport services. There are overlapping functions between the agencies, and road users may be referred from one to another to secure necessary authorizations to operate vehicles. There is also overlap between the enforcement responsibilities of these agencies and the police. For example, the RTD agencies have few resources for enforcing overloading of vehicles, and, as is typically the case, can in any event only do so in conjunction with the police who alone have the authority to stop vehicles. It has been proposed that the three agencies be combined into a single Road Transport Authority.**

**2.8 Shipping.** The Marine Department in the Ministry of Infrastructure and Public Utilities (MIPU) is responsible for shipping legislation, administration and control. The Marine Department surveys ships, reviews and enforces the Marine Act and associated regulations, and provides and maintains navigational aids. In terms of staffing and resources, these activities are overshadowed by its operation of the government's shipyard, slipway and substantial fleet. Proposals have been made for privatization of the government shipping fleet and commercialization of the shipyard. Inter-island freight rates are set by the government's Prices and Incomes Board. In addition to the government fleet operated by the Marine Department, which is used for some commercial

shipping services, services are provided by the Auxillary Unit of the Fiji Military Forces<sup>7</sup> and private ship-owners.

**2.9 Ports.** The Ports Authority of Fiji was created in 1975 as a statutory body responsible to the Minister for Infrastructure and Public Utilities. It is to be self-financing, and may borrow with the approval of government. The functions of the PAF are to provide and maintain services and facilities in ports and port approaches and to control navigation at ports. The PAF is responsible for the three existing ports to Fiji (at Suva, Lautoka and Levuka). MIPU is responsible for maintaining other ports and jetties. A proposal has been recently made to corporatize the PAF.

**2.10 Aviation.** The Civil Aviation Department (CAD) in the Ministry of Tourism, Civil Aviation and Energy is responsible for economic, regulatory, air safety, and policy matters. The Civil Aviation Authority of Fiji (CAAF) is a statutory authority which owns Nadi International Airport (NIA)—where its headquarters are located—and is responsible for developing and operating the airport; it manages other domestic airports on behalf of the government. CAAF also provides air navigation and facilities and services, flight information services, and assists the CAD with accident investigations where there is no conflict of interest. There are six privately-owned airports in Fiji. The Fiji Meteorological Service provides weather information for the 7.5 million km<sup>2</sup> Nadi Flight Information Region which is operated by the CAAF.

**2.11** There are two principal operators of scheduled air services in Fiji: Air Pacific, the largest domestic airline in the region and the international flag carrier of Fiji, (in which the Fiji Government owns 77 percent), and the much smaller Fiji Air (in which the government also has a shareholding). Other domestic airlines include Sunflower Airlines and private

charter services. Domestic air fares are set by the Air Transport Licensing Board in the CAD.

**2.12 Policy and Planning.** Modal policy and planning is undertaken within the sectoral agencies described. The Central Planning Office reviews project proposals and considers intersectoral issues, though it has limited resources to do so.

## C. PRIVATE SECTOR

**2.13** As indicated, there is extensive private sector involvement in Fiji's transport sector. With the exception of road freight operations and inter-island passenger transport, all transport services are subject to price regulation, and buses are subject to service regulation. Road transport services are provided by private operators, with the exception of truck operations by government agencies and by cooperatives for their own use. Private contractors are used by Government for some road construction, although this has been to date very limited. The Government is involved in the provision of inter-island shipping services, but the sector is dominated by private sector operators. The Government's involvement in air services is only indirect, through the ownership of shares in airline companies.

## D. PUBLIC FINANCE

**2.14** In 1989 the Government of Fiji obtained 36 percent of its locally-generated tax current income from taxes on income and profits and 31 percent from taxes on international trade. Current expenditure absorbed 89 percent of the Government's current income, a lower proportion than generally occurs in South Pacific countries.

**2.15** Development expenditure in 1989 comprised F\$94.8 million of capital expenditure and F\$23.3 of net lending, equal to 6.4 percent

of GDP. Foreign grants to Fiji which passed through the government's accounts were, in comparison, F\$19.6 million. Fiji is considerably less dependent on grant assistance than other countries in the South Pacific, and has borrowed from the World Bank and Asian Development Bank (ADB) on several occasions for transport development projects, most recently for a road upgrading program (IBRD in 1989) and a road maintenance program (ADB in 1988).

### **E. HUMAN RESOURCES**

2.16 In common with other South Pacific countries, Fiji has a shortage of indigenous staff with appropriate technical and managerial skills. This shortage has been exacerbated in recent years by increased emigration. Senior positions in government are held by Fijians. There are a number of expatriate staff in line positions in PWD and CPO. These staff are mostly funded through bilaterally-supported staffing assistance schemes and (in PWD) through multi-laterally financed projects.

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## CHAPTER 3 ECONOMIC CONTEXT

### A. DEMAND FOR TRANSPORT SERVICES

3.1 Transport demand in Fiji is influenced by the dominance of Viti Levu in terms of economic activity and population, and their widespread distribution on the island. Forestry and sugar dominate activity at the western end of the island. These primary industries, together with tourism and export manufacturing industries, are supported by the international airport and port at Nadi and Lautoka, respectively. The tourism industry has expanded from the western end of the island along the southern coast and, in recent years, off-shore Viti Levu islands and in the vicinity of Nadi and Savusavu. With its large population and service and industrial activities, Suva dominates activities at the eastern end of the island. The island is comparatively small, and there is the potential for considerable intra-island *road travel*. Given the deteriorated condition of the inter-town gravel/earth roads, it is probable that the traffic volumes and trip distribution of road transport demand on the island will change as roads are upgraded. While the existing paved road conditions are good, there is an increasing number of full containers reported to be carried by road from Suva to Lautoka to use the latter as the export port. Investment at Lautoka port could further encourage this traffic. Roll-on roll-off vessels could emerge as another means for moving containers between the two ports. This raises the question of total transport system costs, including vehicle and vessel operating costs, accident risks, transit times and investment costs. The contributing factors to,

and implications of, structural changes in the modal composition and distribution of transport demand, warrant timely investigation, especially with respect to strategic modal investment alternatives.

3.2 Carriage of sugar cane has been estimated to account for 40 percent of vehicle-kilometers by heavy vehicles (see Section 4.A below). Road transport is increasingly being used for the carriage of sugar cane to mills to complement the use of the dedicated cane railway system. With annual sugar production in the order of half a million tonnes, there will be serious implications for road infrastructure (and potential road damage) if this trend continues. Road traffic to and from ports was estimated to account for 26 percent of heavy vehicle traffic.

3.3 *Local maritime trade* at Fiji's three main ports is small compared with international trade (see Table 3.5 below), and is largely related to the distribution of imported products from Suva and Lautoka to other islands. The trunk inter-island shipping routes are well-served. Many of them are operated from local ports to minimize shipping distance, taking advantage of road links within the islands to provide access.

3.4 Inter-island trade has been affected by changes in industrial location and transport services. For example, the introduction of roll-on roll-off ferry services and relocation of coconut oil processing from Suva to Savusavu were the main contributing factors to a 23

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percent reduction in the inter-island freight passing through the three main ports in Fiji in 1988. The latter reduced the carriage of copra through the port of Suva by 20,000 tonnes. These structural changes will continue to occur. For example, completion of a wharf at Levuku in mid-1991 for PAFCO (the government-owned fish canner) will enable direct export of tuna fish from the port; at present much of the canned fish is carried by roll-on roll-off ferry from Ovalau island to Natovi on Viti Levu and thence by road to Suva for export.

3.5 Travel demand to outer islands in Fiji is limited by their low population and the modest local economic activity on them. However, there is no consolidated data on travel demand generated by them. There has been a decline in the movement of copra within Fiji which has removed much of the historic base load of inter-

island trade. Services to some smaller islands are not commercially viable. This is a matter of concern to the Government which considers, for social and economic development reasons, that the regions should be provided with a threshold level of transport service.

3.6 *International trade* accounts for a large and increasing proportion of Fiji's GDP (see Tables 3.1 and 3.2). In contrast with most Pacific Island countries, imports and exports are in approximate balance. Exports are dominated by sugar, though most other categories of exports have grown more rapidly. The United Kingdom is the single largest destination for Fiji exports, accepting about a third, of which a large proportion is sugar (see Table 3.3). Other trade is focused on the Pacific rim, in particular Australia, New Zealand and, increasingly, Asia. A little over 10 percent of trade has been

**Table 3.1: FIJI—VALUE OF EXPORTS BY TYPE OF PRODUCT, 1985 - 1989**  
(US\$ million, nominal prices, fob)

Item	1985	1986	1987	1988	1989 Est.
Sugar	97.0	118.1	152.3	137.8	144.8
Molasses	5.6	7.0	8.7	8.0	7.1
Coconut Oil	6.6	3.7	2.5	2.4	3.7
Gold	18.9	34.1	41.4	57.0	49.0
Fish Products	11.9	16.1	20.5	33.7	35.1
Forestry Products	6.2	7.0	13.4	18.6	21.6
Other	20.9	27.8	34.4	51.5	93.1
Domestic Exports	167.1	213.8	273.1	309.8	354.4
Re-exports	69.9	62.2	60.9	58.2	64.6
<b>Total Exports</b>	<b>237.0</b>	<b>276.0</b>	<b>334.0</b>	<b>368.0</b>	<b>419.0</b>
Total Exports as % of GDP	44	41	46	55	58

Source: Fiji authorities, World Bank (1991a).

**Table 3.2: FIJI—VALUE OF IMPORTS, 1985 - 1989**  
(US\$ million at current prices, cif)

	1985	1986	1987	1988	1989
Food	69.4	68.6	70.1	81.0	82.5
Beverages & Tobacco	3.7	3.1	/a	/a	/a
Crude Materials	2.9	2.6	2.7	2.9	6.1
Mineral Fuels	100.1	72.6	61.9	62.0	99.6
Oils & Fats	9.1	5.2	6.5	8.1	6.7
Chemicals	33.7	36.5	32.8	46.2	52.2
Manufactured Goods	87.4	93.9	84.6	108.6	138.4
Machinery	79.5	102.7	73.7	97.1	152.4
Miscellaneous Articles	43.4	39.3	47.9	54.9	69.2
Miscellaneous Transactions	11.4	14.4	/b	/b	/b
	68.6				
<b>Total</b>	<b>440.8</b>	<b>439.0</b>	<b>380.1</b>	<b>460.7</b>	<b>607.1</b>
<b>Memorandum Item:</b>					
Percent of GDP	45	39	43	53	58

/a Included in Food.

/b Included in Miscellaneous Articles.

Source: Bureau of Statistics, World Bank (1991a).

destined for other Pacific Island countries; much of this has been in the form of re-exports, with Fiji ports serving as a regional hub for transshipment. However, increasing manufacturing in Fiji may increase domestically manufactured components of exports to other Pacific Island countries. Lautoka is the principal export port, accounting for all of Fiji's sugar exports in 1989. A high proportion of Fiji's sea freight trade, particularly of exports, is bulk products or is containerized (see Table 3.5), with concomitant effects on land transport to and from ports.

3.7 Imports are spread across a range of products. Most products are handled in bulk (for example, fuel) or are containerized. While

only a quarter of exports were destined for Australia and New Zealand in 1987, about a half of imports came from these countries. Trade with Japan and Asia are even more heavily skewed to imports. This imbalance between the origin of imports and destination of exports increases freight transport costs, but has been accommodated by shipping companies.

3.8 *Air freight* plays only a limited role in international trade. Imports by air were 4,500 tonnes (including mail), and exports 6,800 tonnes, less than one percent of that carried by ship. Nevertheless, airfreighted products are of higher unit value, and a reasonably high average of 2.5 tonnes of air freight was carried per departing international flight in 1988/89.

**Table 3.3: FIJI—ORIGIN AND DESTINATION OF TRADE FLOWS, 1985 - 1987**  
(F\$ million at current prices)

	Origin of Imports			Destination of Exports		
	1985	1986	1987	1985	1986	1987
Australia	177.3	166.5	133.5	36.5	53.5	75.4
New Zealand	86.3	83.0	78.7	17.3	20.9	23.8
Japan	76.5	71.3	56.4	6.4	5.4	12.4
EEC	46.9	60.8	-	84.0	110.8	-
Of which: UK	24.5	21.6	21.9	83.0	108.7	138.8
United States	20.8	23.8	24.4	12.8	14.8	20.9
Pacific Islands	3.8	6.0	3.5	44.3	36.2	43.6
Asia	66.9	53.4	95.1	7.9	10.7	27.0
Others	22.8	21.0	45.6	62.5	59.1	65.5

Source: Bureau of Statistics.

**Table 3.4: FIJI—VISITOR ARRIVALS, 1985 - 1989**  
( ' 000) /a

	1985	1986	1987	1988	January-August	
					1988	1989
Australia	89.5	86.3	65.4	75.2	45.2	59.6
New Zealand	19.5	22.7	16.2	21.5	14.2	18.7
United States	49.6	69.7	47.0	42.1	25.4	22.0
Canada	18.9	23.7	16.8	16.9	9.9	10.6
Japan	12.6	11.8	5.5	3.4	1.8	8.6
United Kingdom	7.7	10.0	8.5	8.4	5.0	7.5
Other Europe	12.7	15.8	15.7	20.5	12.4	15.8
Pacific Islands	11.9	12.8	11.2	14.2	9.1	11.9
Other	5.8	5.8	4.5	5.7	3.6	4.4
<b>Total</b>	<b>228.2</b>	<b>257.8</b>	<b>189.8</b>	<b>208.2</b>	<b>126.8</b>	<b>159.1</b>

/a Excludes cruise ship passengers.

Source: Fiji authorities and World Bank (1991a).

**Table 3.5: FIJI—FREIGHT MOVEMENT AT MAJOR PORTS, 1989**  
(’000 tonnes)

	International		Local		Total
	Import	Export	Import	Export	
Suva	479.4	156.7	28.7	55.0	719.8
Lautoka	463.9	666.5	6.5	55.7	1,192.5
Levuku	8.9	1.5	20.1	12.2	42.7
<b>Total</b>	<b>952.2</b>	<b>824.7</b>	<b>52.3</b>	<b>122.9</b>	<b>1,955.0</b>
<b>Comprising:</b>					
Container Traffic	279.9	137.3	..	..	..
Sugar	0	274.3	..	..	..
Other Bulk Products	489.1	364.9	..	..	..
Other Products	183.2	48.2	..	..	..

.. Not available.

Source: Ports Authority of Fiji.

**Table 3.6: FIJI—MACROECONOMIC PROJECTIONS, 1985 - 1999**  
(Growth Rates, in percent per annum)

	1985-1989	1990-1994	1995-1999
(a) <b>GDP</b>			
Agriculture	5.4	3.6	2.9
Industry	2.0	7.1	6.3
Services	2.8	6.2	5.4
<b>Total</b>	<b>3.3</b>	<b>5.8</b>	<b>5.1</b>
(b) <b>Trade /a</b>			
Exports	10.1	6.6	5.5
Imports	10.2	5.8	5.5

/a Goods and Services.

Source: World Bank (1991a).

Excluding the effects of the coups d'etat in 1987, imports by air to Fiji have declined continuously (and by a total of 17 percent) since 1984/85 while exports have, with the exception of 1985/86, risen continuously (by a total of 74 percent).

3.9 Since 1987, Fiji has taken successful steps to stimulate agricultural investment, to promote labor-intensive manufacturing for export, and to encourage growth in tourism. These areas of activity have strong trade links, resulting in increased demand for both domestic and international transport.

## **B. COUNTRY DEVELOPMENT STRATEGY**

3.10 A recent examination of prospects for *economic growth* in Fiji (World Bank, 1991) has forecast declining economic growth in agriculture but considerably higher rates of growth in industry and services (see Table 3.6). There is potential to increase production in the sugar industry, which would reinforce present and emerging transport demand patterns in that sector. However, the Government may seek more diversified agricultural production, which could result in new patterns of transport demand. Manufacturing growth will be focused on exports; it is likely that much of this growth will occur within easy access of the ports at Suva and Lautoka. Tourism is forecast to increase in the order of 8 - 10 percent per annum. The tourist industry will expand into new geographical areas of Fiji, including the off-shore islands of Viti Levu, the Nadi vicinity, and, to a lesser extent, outer islands. This will also induce new travel patterns, in particular for road travel on Viti Levu.

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## CHAPTER 4 TRANSPORT SUBSECTORS

### A. LAND TRANSPORT

**4.1 Road Infrastructure.** The road network in Fiji expanded rapidly from about 2,600 km in 1970 to 4,671 km in 1984, but has increased only marginally since then as emphasis has been given to road rehabilitation and maintenance. In 1987 there were 4,651 km of roads in Fiji, 90 percent of which was on the two main islands (see Table 4.1). The PWD is responsible for maintenance of all but 106 km of the roads, the latter being roads which have not been constructed to a specified standard. Sealed roads represent one-quarter (703 km) of the roads on Viti Levu, but only 6 percent (91 km) on Vanua Levu.

**4.2 Road investment** has fluctuated (in nominal terms) between F\$1 million and F\$2 million annually between 1986 and 1990, and is forecast to rise in 1991 because of an EC grant (see Table 4.2). In contrast, investment in 1983 was F\$10.3 million (nominal), including F\$7.1 million upgrading the Suva - Nadi Queens Road. The shift in emphasis from construction of new roads to rehabilitation of existing roads is reflected in the rise in expenditure on upgrading of the order of F\$7.7 million in 1983 to in the order of F\$20 million annually in recent years.

**4.3 Rehabilitation expenditure** has been given a boost through three specific projects: the

**Table 4.1: FIJI—ROAD INVENTORY, 1987**  
(kilometers)

Island	1987				Total	1984 Total
	Main	Secondary	Country	Other		
Viti Levu	713	298	1,656	181	2,848	2,797
Vanua Levu	454	346	680	10	1,490	1,375
Taveuni	84	-	32	32	148	147
Ovalau	56	-	8	-	64	57
Other	-	-	327	-	327	275
<b>Total: 1987</b>	<b>1,307</b>	<b>644</b>	<b>2,703</b>	<b>223</b>	<b>4,877</b>	<b>4,651</b>
: (1991)	(1,340)	(648)	(2,793)	(212)	(4,994)	

Source: Public Works Department.

US\$23.4 million, World Bank-financed Fiji Road Upgrading Project directed to Viti Levu and Vanua Levu; the US\$18.1 million ADB-assisted Road and Bridge Maintenance Project (with a loan component of US\$13.0 million) which is focused on resealing about 35 percent of the sealed portions of the Kings and Queens Highways (the northern and southern halves, respectively, of the circuminsular road on Viti Levu); and a US\$5.0 million upgrading of Ba and Sigatoka bridges to be undertaken with assistance from Korea (yet to be finalized). Expenditure on these projects was nearing completion in 1991. A second road project (cofinanced by the Bank/ADB and Japan) has commenced and will continue the process of upgrading the existing road network.

4.4 Expenditure on *routine maintenance* (F\$6.7 million in 1983) has fluctuated between F\$6.3 million and F\$8.0 million in nominal terms annually since (see Table 4.2). In real terms, the expenditure has been declining. There is an urgent need for the government to mobilize increased resources for road maintenance, in particular to ensure that the benefits of the recent investment in road rehabilitation are sustained.<sup>8</sup>

4.5 Road construction has been undertaken by PWD through force account and use of private contractors on an exceptional basis (including an international source). As with the Bank's First Highway loan in the 1970s, there have been difficulties in the use of international contractors. However, the ICB process has benefits in developing bidding and management

**Table 4.2: FIJI—ROAD EXPENDITURE BY MINISTRY OF INFRASTRUCTURE AND PUBLIC UTILITIES, 1986 - 1991**  
(F\$ '000 at current prices)

	1986	1987	1988	1989	1990	1991 Est.
Administration	1,861.3	1,734.2	1,412.3	1,749.3	1,786.7	2,008.1
Routine Maintenance	7,457.2	7,977.5	7,349.7	8,504.0	7,640.2	6,830.2
New Roads and Bridges <sup>/a</sup>	1,483.1	1,939.0	961.6	1,028.0	2,029.3	3,145.0
Road and Bridge Upgrading:						
• Routine Upgrading <sup>/b</sup>	5,977.0	3,386.5	873.3	878.5	927.6	1,150.0
• Road Upgrading Project (IBRD)	-	-	19,399.6	14,340.5	17,278.4	3,843.0
• Road & Bridge Maintenance Project (ADB)	-	-	-	6,870.1	7,787.6	8,615.0
• Ba & Sigatoka Bridges (Korea)	-	-	-	-	496.6	1,370.0
Subtotal (Upgrading)	5,977.0	3,386.5	20,272.9	22,089.1	26,490.2	14,978.0
<b>Total</b>	<b>16,778.6</b>	<b>15,037.2</b>	<b>29,996.5</b>	<b>33,370.4</b>	<b>37,946.4</b>	<b>26,961.3</b>

<sup>/a</sup> Includes expenditure using donor funds.

<sup>/b</sup> Includes approximately F\$500,000 p.a. for periodic maintenance.

Source: Ministry of Finance and Ministry of Infrastructure and Public Utilities.

skills. PWD undertakes routine maintenance activities.

**4.6 Road planning** in recent years has been focused on project identification and appraisal for the current Bank and ADB road rehabilitation projects. The work has been undertaken by MIPU using consultants. As the last multi-modal national transport planning study for Fiji was undertaken in the late 1960s, the government plans a new study which will include the establishment of a small transport planning unit in MIPU.

**4.7 Recent planning of road projects** has given some consideration to substitution and complementarity with other transport modes, but this has been limited. Potential developments in all modes should be considered in identifying and appraising road development projects. No study has been made of the potential for changes in the split of travel demand within Fiji and between modes, and uniform rates of traffic growth typically have been assumed for all roads in the evaluations. This may not be a sound planning assumption. For example, the internal rate of return for upgrading of the Lodon road on Viti Levu was a marginal 12 percent; the road is under consideration (but not currently programmed). The road leads to Natovi where a roll-on roll-off ferry travels to Ovalau. As discussed above (paragraph 3.4) the carriage of canned tuna by road is expected to cease in the near future when upgrading of the PAFCO wharf at Levuku is completed. Traffic on the road can be expected to decline. More generally, changes are occurring in vehicle size and traffic mix; for example while traffic volumes have been static for the past 5 years on the Queens Road, tonne-km and container movements are understood to have increased.

**4.8 Vehicle Fleet.** Vehicles in Fiji are required to be registered once and to pay an annual license fee. The Principal Licensing Authority is responsible for these activities. The number of licensed vehicles rose to a peak of

44,461 in 1986, but then declined to 37,452 in 1988. In 1988 the number of vehicles registered was 90 percent greater than the number of vehicles licensed in that year (see Table 4.3). It has been estimated, on the basis of a review of these and other data, that about 44,500 vehicles were in use on roads in 1988 (Roughton, 1989). The fleet was estimated to be composed on 22,050 cars, 1,800 taxis, 2,050 hire cars, 14,200 light commercial vehicles, 3,350 trucks and 1,050 buses. It is likely that vehicle numbers have increased since the country's economic recovery and reductions in import duties on vehicles. The number of licensed vehicles in 1990 is estimated to be 43,600, however, this is not strictly comparable with the 37,452 licensed vehicles in 1988 as some vehicles in use in 1988, but unlicensed then, may now be licensed. Formation of the proposed Road Transport Authority could provide the opportunity to amend the present road vehicle registration and licensing system to eliminate its present deficiencies.

**4.9 Transport Task.** It is probable that trucks will continue to increase their modal share in the carriage of sugar cane. There are no available estimates of the extent of the present role of trucks in the carriage of cane, but the sugar railways generally dominate the activity. Notwithstanding this lesser role, the carriage of cane may account for 40 percent of truck travel and substantial overloading (see Table 4.4). The prospects for increasing use of trucks for the carriage of cane should clearly have a major influence on road planning and design. Analysis of Heavy Vehicle travel (Table 4.4) was prepared using data and estimates of factors such as the quantity of freight despatched or received, the average load of trucks and distance travelled. The approach is constrained by data limitations, but provides a useful indication of the nature of the road freight task. A quarter of the truck kilometers are related to port activities, reinforcing the importance of the road/maritime interface. Main roads account for one-fifth of the road length in Fiji but carry two-

**Table 4.3: FIJI—LICENSED VEHICLES, 1988**

	Licensed Vehicles				Registered Vehicles
	Central/ Eastern Region	Western Region	Northern Region	Total	
Car	10,201	9,640	2,008	21,849	34,895
Light Utility	3,238	4,238	2,401	9,877	
Heavy Truck	554	956	604	2,114	
Bus	322	374	110	806	1,294
Other	709	703	1,394	2,806	11,696
<b>Total</b>	<b>15,024</b>	<b>15,911</b>	<b>6,517</b>	<b>37,452</b>	<b>71,408</b>

Source: Department of Road Transport.

**Table 4.4: FIJI—HEAVY VEHICLE TRAVEL, 1988  
(Vehicle Kilometers '000)**

	Urban	Main	Secondary	Country	Logging	Total	%
<b>Truck kilometers:</b>							
Cane	548	8,417	2,206	1,447	0	12,618	40
Sugar	63	2,038	0	0	0	2,101	7
Logs	10	25	45	79	253	412	1
Timber	29	382	147	29	0	588	2
Port Traffic	3,124	3,036	1,586	481	0	8,227	26
Agricultural/ Industrial	337	6,061	830	43	0	7,271	23
<b>Total</b>	<b>4,112</b>	<b>19,959</b>	<b>4,814</b>	<b>2,079</b>	<b>253</b>	<b>31,218</b>	<b>100</b>
<b>% of Total</b>	<b>13</b>	<b>64</b>	<b>15</b>	<b>7</b>	<b>1</b>	<b>100</b>	
<b>Bus kilometers</b>	<b>8,877</b>	<b>17,632</b>	<b>6,201</b>	<b>1,517</b>	<b>0</b>	<b>34,228</b>	
<b>% of Total</b>	<b>26</b>	<b>52</b>	<b>18</b>	<b>4</b>	<b>0</b>	<b>100</b>	

Source: ADB (1989a).

thirds of the truck traffic. Bus travel is similarly concentrated on main roads, illustrating the importance of inter-town travel.

**4.10 User Charges.** Vehicle license fees were last increased in 1988 and are under review. This was the first increase for many years and license fees rose by about 300 percent. The fees remain relatively low, at F\$38 annually for a car with 1,250 cc engine and F\$120 for a 10 ton truck. Vehicle registration and permit fees were left unchanged, the former being F\$10.

**4.11 Fuel taxes** are the principal source of revenue from road users. They accounted for 72 percent of revenue from road users during the period 1986 to 1988, compared with 12 percent from licenses and 10 percent from import duties (ADB, 1989). *Cost-recovery* during this period for various classes of vehicles has been estimated based on this revenue and an analysis of road costs. The resulting data (see Table 4.5) indicates: passenger vehicles have high rates of cost-recovery; trucks pay less revenue than their (separable) cost to the road system; and the smallest commercial vehicles impose costs about equal to the revenue obtained from them.<sup>9</sup> The income from road users via road user charges and taxes should be attributed to cost recovery and any surplus associated with general taxation. The particularly low level of cost-recovery for medium trucks is exacerbated if extensive overloading of the vehicles and their consequent damage to the road pavement is taken into account.

**4.12 Transport regulation.** As previously noted, fares for buses and taxis are controlled by the Government through the Road Transport Department. Providers of public transport services have been experiencing financial troubles and service standards have deteriorated. It is incongruous that the operators of those vehicles with the highest levels of cost-recovery should provide services at tariffs which constrain financial returns, while operators of trucks which do not achieve cost-recovery, are subject

to lenient enforcement, notably on axle loads. There are considerable opportunities to improve transport efficiency by relaxing the control of fares and tariffs, reforming the system of road user charges and enforcing axle load limits.<sup>10</sup>

**4.13 Road safety** has been an issue of sufficient concern to have warranted a specific review (ADB, 1989b). The number of accidents has been relatively constant during the 1980s. While considerably lower than accident rates in Africa, the rate is, at 17.1 fatalities per 10,000 vehicles, considerably higher than the rates of about 2 fatalities per 10,000 vehicles in Europe, the USA, and Japan. Forty-one percent of the fatalities in Fiji were pedestrians, of which 42 percent were under 14 years old. Statistics attribute about 75 percent of accidents to careless or dangerous driving, while alcohol is cited as the cause in only 3 percent of cases; alcohol is understood to be a greater problem than the data indicate. (Compulsory use of seat belts and use of breath testing were introduced in early 1992.) There is a need to establish an improved accident data base and for PWD to introduce further initiatives to develop traffic engineering skills in PWD. This will improve utilization of accident data for the identification of high accident rate locations and the development of remedial measures. Installation of appropriate road signs, markings and safety features are required. Amendments to the Traffic Act have been drafted to enhance its safety features; enforcement and education are needed to modify road use related behavior.

**4.14 Institutional Performance.** The PWD has developed considerable skills in road engineering. At present it depends on considerable number of expatriate staff. Its skills in planning and traffic engineering need enhancing. There are weaknesses in the present arrangements for control and regulation of road transport. These have been recognized, and a proposal made to combine the three authorities into a single Road Transport Authority. Legislation to do this has been prepared for

**Table 4.5: FIJI—COST-RECOVERY BY VEHICLE TYPE, 1986 - 1988  
(F\$)**

Vehicle	Net Vehicle Weight	Road Cost	Revenue /a	Cost Recovery
Car		241	533	221%
Taxi		241	2,019	838%
Light Utility	< 2 tonnes	368	424	115%
Light Truck	3-4 tonnes	910	1,019	112%
Light Truck	4-5 tonnes	2,419	1,390	57%
Medium Truck	5-6 tonnes	3,918	1,069	27%
Medium Truck	6-8 tonnes	4,910	1,407	29%
Heavy Truck	8-12 tonnes	2,948	1,369	46%
Bus		970	1,994	206%

/a Based on gasoline fuel for cars and taxis and diesel for other vehicles.

Source: ADB (1989).

some time, but not yet implemented. The revised legislation affects other areas of traffic operations (for example, safety) and impediments to its passage should be reviewed.

4.15 Future development plans for the road transport subsector have been recently prepared for an aid round table (GOF, 1990). The policies and strategies identified by the government were: increasing funding for road maintenance, securing external funding for road rehabilitation, construction of new roads to rural and isolated areas for social and economic development, legislative and enforcement actions to reduce vehicle overloading, and a national, multimodal transport study.

4.16 Road transport proposals submitted for external assistance include:<sup>11</sup>

- Second Road Upgrading Project, cofinanced by the Bank, ADB and Japan (Exim), and the Government, with an expected total cost of US\$70 million.

The project involves upgrading of 147 km of gravel and sealed roads. The external financing toward the F\$118 million project involves US\$18 million from ADB, US\$15 million from IBRD, and US\$6.5 million from Japan.

## B. MARITIME TRANSPORT

### Traffic Demand

4.17 Port Traffic. Lautoka is Fiji's busiest port, and its principal export port (see Table 3.5). All of Fiji's sugar and woodchip exports pass through the port. Timber forests are now reaching production stage, and exports of woodchips have increased over a few years from a minimal quantity to 16,400 tonnes in 1989. Traffic at Lautoka port has grown more rapidly than at Suva port (see Table 4.6); this trend is expected to continue. Ninety-one percent of the cargo volumes at the three ports for which the PAF is responsible (Suva, Lautoka

and Levuku) was international in 1989, though local vessels accounted for 62 percent of shipping movements.

4.18 Port efficiency is facilitated by the large proportion of traffic which can be handled in bulk. Only 51 percent of international freight at the three PAF ports required stevedoring in 1989. Moreover, PAF reports that 81 percent of conventional traffic in 1989 was containerized.

4.19 As indicated above, domestic freight movement at the three principal ports declined substantially in 1986 because of a general decline in copra and relocation of a coconut oil processing plant from Suva to Savusavu. Consolidated data on traffic are not available for ports other than the PAF ports. There are no data and little knowledge of traffic carried by the informal shipping sector.

**Table 4.6: FIJI—MARITIME TRAFFIC AT MAJOR PORTS <sup>/a</sup>, 1985 - 1989**

	1985	1986	1987	1988	1989
<b>A. Shipping Movements (No.)</b>					
Foreign Vessels					
• Cruise	87	56	42	37	53
• Bulk Cargo	397	396	444	441	476
• Tanker	185	176	175	189	190
• Other	177	149	139	219	241
Subtotal (Foreign)	<u>846</u>	<u>777</u>	<u>800</u>	<u>886</u>	<u>960</u>
Local Vessels	2,251	2,000	1,933	2,477	1,580
<b>B. Cargo Movement ('000 tonnes)</b>					
• Import	870.2	920.6	734.6	734.9	952.2
• Export	559.0	499.2	593.4	719.6	824.7
• Local	228.0	188.2	206.0	159.3	178.2
<b>Total</b>	<u>1,657.2</u>	<u>1,608.0</u>	<u>1,534.0</u>	<u>1,613.9</u>	<u>1,955.0</u>
Distributed as:					
Suva	725.7	706.4	650.0	585.2	719.8
Lautoka	905.7	882.3	848.4	984.8	1,192.5
Levuku	25.8	19.3	35.5	43.8	42.7

<sup>/a</sup> Traffic at Suva, Lautoka and Levuku.

Source: Ports Authority of Fiji.

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## Shipping Operations

4.20 Formal inter-island shipping is provided by the private sector, the government shipping fleet operated by the Marine Department. Informal services are operated by the private sector, but there is little information on their scale and services.

4.21 At present nine *private companies* operate 39 vessels. This scale is down from 1984 when eighteen operators owned 57 vessels. A contributing factor to the consolidation was the introduction of four roll-on roll-off vessels by two operators in 1983/84. The effect of this new technology was a marked increase in freight and passenger traffic, however, it forced smaller operators onto less viable routes and, eventually for some, withdrawal from the industry.

4.22 Three of the present companies, with nine vessels, are the principal operators in the industry. Between them, these major operators provide almost daily services between the main islands of Viti Levu, Vanua Levu and Ovalau. These three islands account for over 94 percent of the population of Fiji. A feature of these services is their operation from minor ports. Ship utilization is improved and total travel times for passengers and freight reduced by taking advantage of the faster travel times by complementary land transport. This pattern of operation is dependent on adequate road links to the ports. At least weekly services are provided to smaller islands such as Taveuni, Koro, Gau and Kadavu and monthly services to the Lau Group and some other outer islands.

4.23 Much of the private vessel fleet is composed of old vessels. In any event, the limited traffic on routes to the smaller, outer islands will encourage the use of older vessels on these routes to maximize service and profit potential. It is also possible that further consolidation of the industry will occur, after which new investment in vessels may emerge.

4.24 Lack of information on the informal shipping sector raises concern at the relatively limited number of outer islands served by the formal shipping sector. While there are oceanic features which constrain inter-island navigation, it is possible that the informal shipping sector has, or could develop, the capacity to make a contribution to distribution and consolidation activities at selected ports on outer islands. This could reduce the need for provision of higher cost, formal shipping services to, and the need to develop complementary jetty facilities, for all small island communities.

4.25 The *government fleet* operated by the Marine Department now consists of 30 vessels (down from 35 in 1988 and 40 in 1985). The decline is attributable mostly to disposal of older vessels. The present fleet includes general purpose vessels and specialist vessels such as dredges, medical vessels and vessels to support construction and maintenance of navigational aids. The objective of the government fleet is primarily to serve the inter-island shipping needs of government. When available, the vessels are used for commercial purposes to generate income. It was estimated that the government fleet carried about 7 percent of total inter-island freight and 6 percent of inter-island passenger movements in 1985. The vessels are also chartered to private operators for international trips. It is the government's intention to withdraw from shipping routes which can be handled by the private sector.

4.26 Government has become further involved in commercial operations (for agricultural commodities) through services operated by the National Trading Corporation (using vessels previously operated by the Auxiliary Unit of the Fiji Military Forces). The implications of these are not documented.

4.27 Route licensing of inter-island shipping services has been recommended by a study of rationalization of inter-island shipping services (ADB, 1986d). Regulatory intervention was

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recommended on the basis of enhanced safety and an improved commercial environment. (These recommendations have not been taken-up.) Safety matters do not require route licensing and, given the consolidation of the formal inter-island shipping industry since the time of the study, these recommendations warrant re-assessment.

### **Port and Marine Facilities**

4.28 There are three major ports in Fiji: at Suva and Lautoka on Viti Levu and at Levuku on Ovalau. The ports are owned and operated by the Port Authority of Fiji (PAF). Privately-owned terminals are located at the PAF ports (especially at Lautoka) primarily for the handling of bulk materials. Other significant ports or deepwater anchorages are located at Malau, Savusavu and Vudu Point. There are some 60 inter-island shipping origins in Fiji, of which about 20 currently have jetties. There is no fixed infrastructure at the other 40 locations. There is little formal knowledge of the usage of jetties. It appears that some have deteriorated, in part by damage caused by large vessels.

4.29 The two principal port investment projects undertaken in the last decade include a US\$7 million ADB-assisted project to develop cargo handling equipment and storage and circulation areas at Suva port and an AIDAB-assisted project to develop a wharf at Levuku for PAFCO (the Government-owned fish canner) to enable direct export of produce overseas. The PAFCO wharf is adjacent to the PAF wharf. In addition to these two wharves, a third wharf is located at Buresala (at the western end of Ovalau). The latter wharf is used by the roll-on roll-off ferry service which operates to Vanua Levu and to Natovi on Viti Levu. In total this represents a considerable amount of wharf capacity for the limited sea traffic to and from the small island. Moreover, development of the wharf for PAFCO may detract from the potential to develop Levuku port, the weakest of the three PAF ports. The PAF wharf at Levuku has

deteriorated with age and heavy use and is in need of rehabilitation; investment in the port is not justified in financial terms and PAF has no plans for significant investment in it.

4.30 Other investment by PAF at Suva and Lautoka has focused on gradual upgrading to improve efficiency, for example, to reduce vessel turnaround times and to improve cargo handling. Particular attention has been given to Lautoka port in recent years with improvements including rehabilitation of the 30 year old Queens wharf used for passenger and container services, a fishing port, and a new privately-owned woodchip loader. The PAF has a F\$12.8 million loan facility with the European Investment Bank which will be used for reclamation works and expansion of Lautoka port, in particular to accommodate container ships. Continuing improvements will also be made at Suva, for example, it is proposed to relocate local vessel facilities to release space for international services.

4.31 Investment by the government in other ports in Fiji has been an average of F\$380,000 annually (1989 prices) between 1985 and 1989. AIDAB provided F\$2.0 million (1989 prices) of assistance in the early 1980s for development of jetties on outer islands. The government is proposing an expanded program for the construction of jetties on small islands.

4.32 There are no serious capacity constraints at the major ports in Fiji, although storage at Suva is limited. With the exception of a substantial project to expand the capacity of Lautoka port, which is expected to be completed in early 1993, there are no major port investment needs. (Proposed upgrading of Levuku port is not likely to be economically warranted at the present time.) There will be a need for ongoing, small investment projects to ensure capacity to accommodate future traffic demand. Much of this investment will be directed to measures to improve port efficiency.

Private sector investment will occur in associated port facilities, such as bulk loading equipment.

4.33 As a self-financing statutory authority, the PAF has a considerable interest in undertaking adequate *maintenance* of its facilities. Expenditure by the PWD on maintenance of jetties on outer islands has been an average of F\$26,000 per year (1989 prices) between 1985 and 1989. This appears inadequate. The annual expenditure to adequately maintain the investment by AIDAB in the early 1980s would be of the order of F\$40,000 alone, with additional sums required to maintain other infrastructure. Adequate maintenance is the most economical means for sustaining port facilities in the outer islands. Continued deferral of maintenance and lack of a sinking fund (or equivalent) for rehabilitation/replacement will result in significantly higher life-cycle costs and financial strains.

#### **Institutional Performance**

4.34 The *Port Authority of Fiji* has achieved a financial surplus after operating and capital charges in each year from 1985 to 1989 (with the exception of 1987) with an average return on operating assets of 0.9 percent over the period. It has increased its efficiency markedly; the number of employees was reduced by 10 percent during these five years while cargo movement increased by 18 percent. The PAF is developing a corporate plan and has major objectives to improve its marketing and operating efficiency. A proposal has been made to corporatize the PAF. This should further encourage improved financial performance however, appropriate accountability and monitoring are required in recognition of PAF's monopoly position at the major ports. Although scheduled for 1992, corporatization of PAF has been deferred pending the developing of a general policy framework by the Government.

4.35 In addition to its policy and regulatory functions, the *Marine Department* operates the

government shipping fleet, shipyard and slipway. In 1989 these latter two activities accounted for 80 percent of the Department's expenditure and 90 percent of its staffing (see Table 4.7). A previous review indicated that the shipyard could be profitable and that it be corporatized. However, this same review argued that the slipway (which is unlikely to be financially viable) should remain in government hands in the national interest (ADB, 1986c). While the number of employees associated with the shipyard was reduced from 333 to 235 between 1985 and 1989, revenue from slipping fees and other income in 1989 was only 28 percent of the direct costs of shipyard and slipway activities. In the meantime, the only major private sector shipyard operator has ceased operations. Given the lack of success of securing profitable operations since the review in 1986, it is now desirable to review the objectives and prospects for the shipyard under different operating options.

4.36 The government fleet operations accounted for 60 percent of the Marine Department's expenditure in 1988 (see Table 4.7). Vessels are productively utilized only about 38 percent of the time, are under repair for 32 percent, and are idle for the remainder. A report of possible divestiture of the government shipping fleet (ADB, 1986d) recommended that the fleet be reduced to 25 vessels and that a user charging system be introduced. While the fleet size has been gradually reduced, charges have not been introduced. There is considerable economic merit in this proposal and its introduction should be reconsidered. The government is seeking to sell vessels which are surplus to requirements. It would be helpful to establish the fleet which the Marine Department requires to undertake its own responsibilities (i.e. enforcement of regulations and provision and maintenance of navigational aids) to assist the ordering of priorities for further vessel disposal and replacement.

**Table 4.7: FIJI—MARINE DEPARTMENT INCOME AND EXPENDITURE, 1988  
(F\$ '000)**

	F\$ '000
<b>Income</b>	
Shipping tariffs	130.8
Slipping Fees	141.3
Light Dues	194.8
Other	64.8
<b>Total</b>	<b>531.7</b>
<b>Expenditure</b>	
Administration	403.7
Fleet Operations and Maintenance	2,202.4
Shipyards and Slipway	741.9
Shipping Office Regulatory	294.0
Navigational Aids	51.7
<b>Total</b>	<b>3,693.7</b>

Source: Marine Department.

### Planning

4.37 Incomplete understanding of domestic shipping services in Fiji impedes effective transport planning and project identification, particularly for facilities and services on outer islands. On the main islands there is a need to explore the inter-relationships between road and sea transport to foster efficient response of the transport system as a whole to emerging trends in relative costs and demands. Particular issues include: freight transport in the corridor between Suva and Lautoka,<sup>12</sup> road access to these two major ports, and road linkages to ports used for inter-island services.

4.38 For inter-island shipping, there is a need to identify the most effective means for serving the transport needs of small islands. Proposals

to develop more jetties on outer islands and for route licensing are questionable and warrant further investigation. The proposals need to be examined against alternative strategies. For example, a strategy being pursued is to develop jetties on islands near existing inter-island shipping routes to permit ships to stop briefly at the islands. Another approach in some locations may be to develop road links on islands to avoid the need for several jetties on a single island. Greater use might be made of the informal shipping sector for services within outer islands. Technical and economic appraisal of these options requires a comprehensive understanding of both the informal and formal inter-island shipping industry, including present trends.

4.39 These various planning issues reinforce the need for the proposed national transport study.

### Investment Proposals

4.40 The only major investment proposal by government for the maritime subsector is replacement of jetties on three islands (Cicia, Gau and Rotuma) at a cost of F\$1.5 million. The proposed new jetties could accommodate inter-island vessels, with the objective of attracting services to islands with reasonably substantial populations (for example, Rotuma has a population of 3,000 people). Funding for this project has not yet been secured.

4.41 A major project is to be undertaken by PAF to expand Lautoka port. Other investment projects to be undertaken by the PAF will be modest in scale.

## C. AVIATION

### Air Routes

4.42 International air services link Fiji directly to almost all South Pacific countries and to the principal sources of its tourist traffic (see the air route diagram at the end of this survey). A transition has occurred as extended range aircraft permitted trans-Pacific services to overfly Fiji. Although the number of transit services stopping at Fiji to refuel has declined, some six return trans-Pacific flights continue to involve stopovers in Nadi. Being the focus for services to the South Pacific region, Fiji also serves as the hub for travel within the region. In this role it serves the tourist industries of countries such as Tonga and Western Samoa which have limited or no direct air links to major origin markets, particularly Australia and New Zealand. Virtually all international flights operate to Nadi International Airport (NIA). The exceptions are some flights to Tonga and Western Samoa which include Nausori airport

(21 km from Suva) and NIA. The number of international flights to Fiji has remained relatively steady during the second half of the 1980s, with a decline following the coups d'etat in 1987 and a major recovery in 1989/90.

4.43 Domestic scheduled air services are provided to eight locations from Nadi and to ten locations from Nausori, aside from the heavily serviced route between the two airports. About 63 return services are provided weekly from Nadi, 78 from Suva and 30 between the two airports. The total market is segmented, however, the Nadi-Suva route is now open. Currently, Air Pacific, Fiji Air and Sunflower serve the route. Air Pacific provides dedicated services between Nadi and Suva (Nausori) and Fiji Air provide services based from Nausori. Sunflower Airlines and Turtle Airways also provide services from NIA. Aircraft used for domestic operations are generally small, Air Pacific's ATR 42s being the largest aircraft currently in use.

4.44 Services from Nadi are oriented primarily to tourism needs, and four of the locations served do not have air links to Suva. Air links from Suva serve domestic requirements, with at least twice daily flights to major centers such as Labasa, Levuka, Savusavu and Taveuni, and infrequent (usually only weekly) services to small, outer islands. Nadi and Nausori airports are the foci for all air routes in Fiji excepting services between the islands of Taveuni and Vanua Levu.

### Airport Traffic

4.45 Nadi International Airport recorded 863,200 passenger movements in 1990/90, 86 percent of which were international (see Table 4.8). Its role as a hub and a transit point to other countries in the Pacific, and as a stopover for trans-Pacific flights, is reflected in the large number of transit passengers, though these are in general decline. Aircraft used for international flights to and from Fiji have

**Table 4.8: FIJI—PASSENGER AND AIRCRAFT MOVEMENTS AT NADI AIRPORT,  
1985 - 1990**

	1985/86	1986/87	1987/88	1988/89	1989/90
<b>International Passenger Movements:</b>					
Arrivals	260,321	270,894	200,281	266,667	300,188
Departures	269,308	289,990	217,037	273,387	312,523
Transit	210,911	196,342	142,857	168,230	125,163
<b>Total</b>	<b><u>740,540</u></b>	<b><u>757,226</u></b>	<b><u>560,175</u></b>	<b><u>708,824</u></b>	<b><u>737,874</u></b>
<b>Domestic Passenger Movements</b>	<b>107,028</b>	<b>104,293</b>	<b>84,514</b>	<b>93,507</b>	<b>115,353</b>
<b>Aircraft Movements:</b>					
International	5,252	5,462	4,456	5,496	6,522
Domestic	15,766	17,280	12,322	13,670	17,033
Other Domestic /a	972	2,736	16,808	9,252	5,509
<b>Total</b>	<b><u>21,990</u></b>	<b><u>25,478</u></b>	<b><u>33,586</u></b>	<b><u>28,238</u></b>	<b><u>29,064</u></b>
<b>Comprising:</b>					
B747/B767/DC10	3,528	3,422	2,532	3,770	3,734
Other Jet	2,200	1,660	1,202	1,894	1,906
Other	16,262	20,396	29,852	22,574	23,424

/a Includes aerial work, military, private and training flights. Training flights account for most of the annual variations.

Source: Department of Immigration and CAAF.

changed during the second half of the 1980s. Passengers numbers increased until 1989/90, while aircraft movements were generally stable but involved an increasing proportion of large wide-bodied jet aircraft. The number of passengers using the airport for domestic flights follows the same pattern as international passengers; most domestic passengers are transferring between international and domestic flights. International services have become

increasingly focused at Nadi, and only a few flights each week now use Nausori airport.

4.46 Nausori airport serves a different market to NIA, catering for fewer tourists and few international services. The number of passenger movements at Nausori thus fluctuates less over time than at NIA (see Table 4.9). Increasing use has been made of propeller aircraft at the airport, and the number of aircraft movements

**Table 4.9: FIJI—PASSENGER AND AIRCRAFT MOVEMENT AT NAUSORI AIRPORT,  
1985 - 1990**

	1985/86	1986/87	1987/88	1988/89	1989/90
<b>Passenger Movements</b>					
International	28,539	20,277	16,294	13,689	14,309
Domestic	134,837	139,005	111,167	120,210	136,371
<b>Total</b>	<b>163,379</b>	<b>159,227</b>	<b>127,461</b>	<b>133,899</b>	
<b>Aircraft Movements</b>					
International	876	889	908	798	
Domestic <sup>/a</sup>	14,419	13,661	10,874	10,482	
Other Domestic	1,455	1,920	3,046	2,214	
<b>Total</b>	<b>16,750</b>	<b>16,470</b>	<b>14,828</b>	<b>13,494</b>	
<b>Comprising Aircraft by Type:</b>					
Jet (B737)	1,148	798	752	624	
Other	15,602	15,672	14,076	12,870	

<sup>/a</sup> Scheduled and non-scheduled.

Source: Department of Immigration and CAAF.

has generally moved in line with passenger demand.

4.47 Activity at *other airports* in Fiji has increased slowly. There are, however, two distinct groups of airports; one with large numbers of passengers and stable or increasing traffic, and the other with declining traffic. While the number of passengers at airports in the former group rose by 30 percent between 1984/85 and 1989/90, passenger movement at the other fourteen airports declined by 73 percent (see Table 4.10). Activity had ceased at six of the airports by 1988/89, but recommenced at two of them in 1989/90. The reasons for this dramatic decline at so many of the smaller airports should provide useful lessons in

formulating policies and programs for future development and maintenance of the airstrips. Passenger traffic at Labasa airport, the busiest of the airports, has changed little. The extent to which this change can be attributed to good sea links to Viti Levu will have implications for development of maritime and aviation facilities for inter-island travel in Fiji. The landing fee at the domestic airfields has remained constant at \$3 since 1966. At this level it has not been a constraint to use of the airfields nor has it raised significant net revenue to contribute to airfield maintenance.

**Table 4.10: FIJI—PASSENGER AND AIRCRAFT MOVEMENTS AT OTHER AIRPORTS, 1984 - 1989**

	1984/85		1988/89	
	Passenger Movement	Aircraft Movement	Passenger Movement	Aircraft Movement
Bureta	11,710	1,354	15,387	2,058
Kadavu	4,781	678	4,912	590
Labasa	42,477	4,544	44,991	3,223
Malolo-Lailai	21,019	4,244	40,620	7,539
Matei	13,182	2,247	13,433	2,901
Savusavu	12,466	1,811	17,504	2,538
<b>Subtotal</b>	<b>105,635</b>	<b>14,878</b>	<b>136,847</b>	<b>18,849</b>
Cicia	813	98	251	100
Gau	3,957	306	86	60
Koro	2,255	290	162	40
Lakeba	2,398	228	1,246	210
Laucala Island	282	102	-	-
Moala	2,092	210	602	102
Ono-I-Lau	22	12	-	-
Pacific Harbor	2,701	1,337	989	485
Rabi	1,140	100	8	2
Rotuma	1,782	246	933	106
Saqani	19	4	-	-
Vanuabalalavu	2,212	230	1,133	172
Wakaya	455	146	-	-
<b>Subtotal</b>	<b>20,128</b>	<b>3,309</b>	<b>5,410</b>	<b>1,277</b>
<b>Total</b>	<b>125,763</b>	<b>18,187</b>	<b>142,257</b>	<b>20,126</b>

Source: Passenger figures from airline returns. Aircraft movements from CAAF.

#### **Airport Facilities and Investment**

4.48 Nadi International Airport has a 3,200 meter runway suitable for use by wide-bodied aircraft (to 747 standard) on existing routes. There are no major capacity constraints to use of the airport at present. Extension of the runway

to about 4,200 meters would be required to accommodate aircraft on direct services between Fiji and the continental USA. No such services are currently planned. Major investment at the airport in recent years has included a continuing program to upgrade the passenger terminal and acquisition of equipment.<sup>13</sup>

4.49 Nausori airport has a sealed 1,800 meter runway which can accommodate aircraft such as B737 which are used for some regional international services. There has been little investment at the airport in recent years. At *other airports* the facilities are modest. The sealed airstrip at Labasa has deteriorated seriously, and services to the airport downgraded. While services to some airports have ceased, the CAAF is obliged to continue maintenance of them; in practice insufficient funds have been expended on maintenance and the airstrips have continued to deteriorate. Both Australia and EEC aid funds were used for development of these airstrips in the late 1970s and early 1980s.

#### **Operations and Administration**

4.50 In addition to owning and operating the NIA, the CAAF manages Nausori Airport and other airstrips on behalf of the Government. The government reimburses the CAAF for the cost of operating Nausori Airport and the other airstrips, while PWD maintains them. The condition of many of the airstrips is poor. Following a review of eighteen airstrips in 1990 (GHD, 1990) it was necessary to close four of them immediately for critical maintenance and to require urgent repairs to two others. Potentially serious safety-related deficiencies were identified in a further five airstrips, and less urgent works for two others. Inadequate and inappropriate use of recurrent funding for the airstrips has limited maintenance activities.

4.51 Consideration has been given recently to corporatization of the CAAF. However, it has not been recommended as many of the functions presently undertaken by it are not appropriately located in a company, for example, licensing (ICAO, 1990). It has been proposed instead that the CAAF become the sole authority for civil aviation activities in Fiji with enlarged financial powers. This could include CAAF retaining all revenue from the international departure tax but taking full responsibility for all airports in Fiji.

At present the CAAF receives a quarter of the departure tax at NIA only. This proposal is currently being considered by government.

4.52 In 1988/89 the CAAF achieved a surplus, after interest and depreciation, of F\$2.0 million, and has accumulated reserves of F\$38.0 million. Increased overflying of trans-Pacific flights has deprived the CAAF of landing charges and revenue from concessions such as fuel and terminal facilities. However, the CAAF has continued to provide commercial services in its very large flight information region. In 1988/89 charges for these services provided 33 percent of its income. Technological advances in air navigation will reduce the need for these services in the future and this is a cause of understandable concern. Accordingly, the CAAF is examining ways to develop further its non-aeronautical revenue. The Fiji Prices and Incomes Board must approve increases in some fees charged by CAAF (for example, the fuel charge).

#### **Airline Operations**

4.53 Air Pacific is currently provided management services by Qantas Airways of Australia. All services between Fiji and Australia are now operated as joint services. The generally static demand for domestic air travel and changes in the distribution of demand has placed financial pressure on the local airlines.

#### **Planning**

4.54 Considerable planning for the development of Nadi and, to a lesser degree, Nausori has been undertaken. A recent master plan prepared for NIA (Bradfield, 1986) identified the need for ongoing improvements, for example, construction of a new taxiway, overlay of the secondary runway (and consideration of its extension) and extension to apron areas. These improvements are now included in CAAF's proposed investment

program. The ICAO review of CAAF (ICAO, 1990) also prepared projections of future demand at all airports in Fiji and forecast income and expenditure for their operation and development. It has been assumed that the existing airstrips should be sustained. The cost of doing so with little or no traffic at some, should be assessed and alternatives examined.

### **Project Proposals**

4.55 The government's objectives for air transport are: to provide air service facilities within reasonable reach of the least accessible areas of the country; to maintain safety in domestic air transport; to promote international air services so that they should not constrain tourist development; to ensure a high standard of service at Fiji's Nadi and Nausori airports; and to promote the provision of air freight capacity (GOF, 1990).

4.56 Projects submitted to the International Donors Round Table Meeting in 1990 included:

- Upgrading of Savusavu airport, including runway rehabilitation and improvements to navigational aids and the terminal (\$0.75 million).
- Repairs to thirteen other domestic airstrips (\$1.2 million).
- Development of an aircraft maintenance center at NIA and relocation of an existing facility at Nausori airport (\$10 million).<sup>14</sup>

- Extension of the secondary runway at NIA, strengthening of runway and apron areas and construction of a new runway (\$14 million).

4.57 At this stage, no donor funds have been committed to these projects. Although some of these projects may be commercially viable, to date, detailed evaluations of their viability have not been prepared. EEC funds are committed to a project to upgrade navigational and other equipment at Nausori airport.

### **D. INTERMODAL**

4.58 Fiji is reasonably well-endowed with transport infrastructure however, much of it has deteriorated. The process of rehabilitating the road system has commenced. Several strategic issues need to be addressed to ensure ongoing investment is used in the most effective manner. A number of these issues are intermodal. The proposed national transport sector plan should be an appropriate means for addressing these issues and setting a sound framework to guide future development and operation of the transport sector. It is important that the strategic issues be addressed as a pre-requisite to identifying and evaluating individual project proposals. This will first require a review of the future micro-economic environment for transport, particularly the regulation of services and cost-recovery policies.

## CHAPTER 5 TRANSPORT SECTOR DEVELOPMENT NEEDS

### A. INTRODUCTION

5.1 Fiji has a substantial stock of transport infrastructure, much of it developed during the 1970s and early 1980s. Due to inadequate maintenance and poor use, considerable deterioration in the quality of the infrastructure, particularly roads, had occurred by the late 1980s. The government has responded to this situation by initiating a major road rehabilitation program based on an assessment of upgrading priorities.

5.2 Fiji is currently experiencing continued economic recovery. Given the economic policies being pursued, and under reasonable climatic conditions and external economic circumstances, there are good prospects for sustained economic growth in the 1990s. This growth will exacerbate some of the structural changes in transport demand and supply which are already evident. There is a need to respond to these changes to ensure that the transport sector is efficient, future investment directed to where it can be most effective, and transport does not become a constraint to continued economic growth.

### B. GENERAL TRANSPORT SECTOR ISSUES

5.3 **Institutional Responsibilities.** Government's responsibilities in the transport sector are well-organized, and generally with little overlap between agencies. Issues raised in recent years include: amalgamation of the road

transport regulatory agencies; the future of the Government shipyard, slipway and shipping fleet; the roles of the Civil Aviation Department and the Civil Aviation Authority of Fiji, and the appropriate organization of the latter; the appropriate structure of the Ports Authority of Fiji. These issues have been addressed by the Government, but some are in need of clearer resolution than has occurred to date.

5.4 **Transport Regulation.** As with other aspects of the economy, the Government took an interventionist approach to regulation and operation of the transport sector during the 1970s and 1980s. The effect of this intervention on constraining economic efficiency has not been adequately recognized. Nor has it necessarily achieved that which was sought, with the quality of public transport declining at present and shipping services to outer islands still considered inadequate. There is a need to better understand the micro-economic structure of the transport industry and to allow the industry to meet transport demand in the most efficient manner. Intervention should focus on ensuring safety, monitoring markets which are least contestable and imposing user charges which support cost recovery and transport efficiency.

5.5 **Transport Strategy.** Transport planning and investment to date has been undertaken mostly on a modal basis, with limited cognisance of modal interactions and of the economic environment which dictates transport demand. There are a number of strategic issues which must be addressed to ensure that ongoing investment is made in the most effective manner,

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including full social costs and benefits. A number of these issues are intermodal, for example: transport in the Suva - Lautoka corridor; the relationship between road and ferry services for inter-island travel; the relative merits of promoting maritime and aviation services to outer islands; growth in the use of trucks for the carriage of sugar cane; and efficient charges for road users and for use of other transport infrastructure. Consideration should also be given to the issues which could in the future cause rapid change in the demand for transport services (as occurred with the introduction of roll-on roll-off ferries), for example, the effects of economic development on Viti Levu and changes in the ports used by vessels on inter-island services.

**5.6** A proposed national transport sector plan should provide an appropriate means for addressing these issues and setting a sound framework to guide future development and operation of the transport sector. (Work on this sector plan, financed by ADB, is scheduled for early 1993.)

**5.7 Maintenance.** Much of the present deficiency in transport infrastructure is attributable to inadequate maintenance in the past. Present and future rehabilitation projects will not have lasting impact if routine and periodic maintenance are not improved. Funding and careful establishment of maintenance priorities by asset are the principal constraints to improved maintenance. It is crucial that government accrue the necessary financial and human resources to deal with effective maintenance management. Other potential constraints are the skills of PWD for managing and undertaking maintenance activities.

**5.8 Human Resource Development.** With a shortage of adequately-skilled government staff at present, there is a need to continue training programs that develop skills necessary to support government's activities in the transport sector.

The government will continue to depend on expatriate staff, but should seek to accelerate the process of developing local skills by increasingly using expatriate staff as advisers, trainers and through "twinning" arrangements with overseas similar organizations. The government could also further tap the skills base of the private sector by increasing the use of contractors to assist in infrastructure development and a range of maintenance activities.

### **C. LAND TRANSPORT SUBSECTOR**

**5.9 Cost-Recovery.** The present disparity between cost-recovery for passenger and freight carrying vehicles, and the under-recovery of costs for the latter, is inappropriate and leads to inefficient use of transport resources. There is a need to implement a revised scale and structure of taxation and charges which: reflect the considerable incremental cost that heavy vehicles impose on roads; ensure consistency in the level of cost-recovery for similar vehicles used for similar purposes; raise sufficient revenue (consistent with efficient road use) to provide funds needed for road maintenance. This will require: a considerably stricter approach to overloading of trucks, with greater enforcement and higher penalties; reduction in the cost-advantage to light commercial vehicles which compete with comparable buses for passenger transport; establishment of adequate and secure funds to efficiently allocate to road maintenance.

**5.10** A danger of delaying revision of road use taxation and charges to more appropriate levels is that inefficient structural changes in the use of transport will occur on the basis of the present charge. For example, the use of trucks will be excessively encouraged by the present low charges imposed on them, leading to increased road maintenance needs and, possibly, to inappropriate decisions regarding road development projects.

**5.11 Regulation.** The basis for, and effect of, present licensing of routes and fares for public transport services should be reviewed. Public safety should be treated as a separate matter in this respect; it is the responsibility of the Principal Licensing Authority to ensure that all road vehicles are in an appropriate condition to be licensed and drivers suitably qualified. Low fares and improved transport services will be fostered by avoiding route monopolies and imposed fares. Rather, new operators should be permitted to enter designated routes, possibly under prescribed (though not prohibitive) conditions. The fares should be monitored, and, if necessary maximum fare guidelines indicated.

**5.12 Maintenance.** Urgent attention is required to allocate increased resources to road maintenance. Several major road rehabilitation programs were completed in 1991 and 1992; if the improved roads do not receive adequate routine maintenance from the outset, the value of the investment will decline rapidly, and total transport system costs be higher than necessary. Given the seriousness of the existing situation, and the history of budgeting practice and its shortcomings, consideration should be given to establishing a link between road user charges and a minimum funding level for road maintenance.<sup>15</sup>

**5.13 Road Safety.** The cost of road accidents to the Fiji economy is substantial and actions which will reduce the number of accidents should be implemented. Traffic engineering skills need to be developed to facilitate this improvement in road safety and to enhance road capacity.

**5.14 Road Investment.** The emphasis in the next few years will remain on rehabilitation of the existing road network. These improved roads will, for the most part, meet the needs of growth sectors in the economy. The priority for new road links should be those which provide access to new agricultural, industrial and tourism developments. Selection of roads for upgrading

should take a more strategic view of future traffic growth, reflecting the role of individual roads and complementary modes in supporting growth areas in the economy and other changes which could significantly influence travel demand.

#### **D. MARITIME SUBSECTOR**

**5.15 Inter-island Shipping.** The considerable rationalization of the formal inter-island shipping industry during the 1980s demonstrates the capacity of the industry to change in response to market pressures, much of which can be attributed to the introduction of roll-on roll-off vessels in 1983/84. The government should accommodate continuation of the rationalization and evolution of an efficient and appropriate scale industry. This will be facilitated by reviewing the need for, and preferably withdrawing, freight rate regulation; establishing charges and taxation of the shipping industry that are efficient and consistent; insisting that commercial shipping services provided by the Marine Department and the Fiji Military Forces do not discriminate against the private sector. Given circumstances in the shipping industry, economic maritime regulation should be unnecessary and consideration should be given to removing the regulation of freight rates and establishing monitoring capability.

**5.16** The provision of services to small outer islands by the Marine Department fleet is costly, and alternative, cost effective, means of defining and providing an appropriate level of social service to these islands should be investigated. In this context, there is a need to identify the potential of the informal shipping sector and to assess its use to support services within the outer islands.

**5.17 Government Shipyard.** It is the Government's intention to promote efficiency, cost effectiveness and increased productivity for the shipyard so that it can operate on a

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commercial basis, with a view to privatization in the medium term. Given the cost of ongoing subsidies, it is a schedule, of shorter rather than longer duration, for this process should be established. A formal business plan should be prepared indicating the timing and nature of financial and performance targets to be achieved, and actions to be taken in the event they are not. The Government should consider sale of the shipyard "as is" if commercial operations are not achieved within a specified time, for example, two years.

**5.18 Government Fleet.** There is a need to make a distinction between the three present roles of the Government fleet: supporting navigational aids and other formal maritime obligations of the Marine Department; provision of shipping services for Government agencies; and commercial shipping operations. With respect to the first role, the Department must retain the capacity to adequately service its maritime obligations and should define its vessel needs for this purpose.

**5.19** It is probable that the commercial shipping operations of Government inhibits rationalization of the inter-island shipping industry. The Government intends withdrawing from routes which can be handled by the private sector and selling surplus ships. An immediate program to do so should be prepared and implemented. The same should apply to operations such as the chartering of ships to the private sector. The provision of shipping services to Government agencies, including services to outer islands not served by the private sector, should, at a minimum, be treated on a commercial basis, with the agencies charged accordingly. Preferably, the Government should also withdraw from the provision of these services, chartering private sector vessels when required.

**5.20 Maintenance.** Maintenance of existing jetties and wharves which are the responsibility of Government is inadequate, and will result in

the continued deterioration. The value of future capital investment will be devalued without a commitment to adequately funding maintenance activities. Means for securing these funds from cost-recovery mechanisms should be examined, on a similar secure basis as for the roads subsector.

**5.21 Ports Authority of Fiji.** The Ports Authority of Fiji has effectively managed and developed the principal ports at Suva and Lautoka. The future of the port at Levuka may need to be assessed in the light of the limited traffic at the port and the development of an adjacent wharf for PAFCO. The Ports Authority has operated as a commercial organization, albeit with a low rate of return on assets. Extension of PAF activities out of the three main ports (for example, into the inter-island wharf at Suva) call for careful assessment. The Government will need to develop sound reporting, monitoring and accountability mechanisms to ensure that the Authority's ownership of the two principal ports in Fiji does not lead to inefficiency and excessive charges.

**5.22 Maritime Investment.** Investment needs for the ports at Suva and Lautoka are adequately catered for at present. The prime concern is therefore with the development of jetties for inter-island services. The provision of landing facilities at the forty inter-island origins without any existing infrastructure and rehabilitation or replacement of existing facilities required at another twenty locations exceeds existing resources. To avoid the over-investment which may have occurred in the provision of airfields on outer islands, the Government should examine carefully whether investment in jetty facilities will achieve the improved inter-island services desired. (Landing barges may be the superior approach at some locations). The strategy of developing berthing facilities to accommodate roll-on roll-off vessels on smaller islands to attract stopovers by vessels currently operating nearby shipping routes could be effective, but has the high risk of involving

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over-investment. The need to invest in both airstrip rehabilitation and jetty development on outer islands should be examined concurrently to identify opportunities for rationalization of transport infrastructure.

## **E. AVIATION SUBSECTOR**

**5.23 Institutional Arrangements.** The Civil Aviation Authority of Fiji has effectively managed the development of Nadi airport. The proposal for the Authority to become the sole agency for all civil aviation activities in Fiji, including responsibility for all domestic airfields warrants a full assessment. In the longer term the option of separating the commercial, regulatory and other activities of the Authority may need to be re-addressed. This may need to wait until sufficient skills and resources are available to support more than one organization.

**5.24 Aviation Investment.** Past over-investment in airstrips in Fiji is illustrated by the declining use made of many of them, together with inadequate maintenance which has, from time to time, required airstrips be closed for emergency repairs. Alternatives to the proposal to use international departure taxes to fund maintenance of airstrips should be examined. For example, increasing the current low landing fees at these airstrips. A more detailed appraisal of the opportunity cost of upgrading little-used airstrips is warranted prior to implementing proposed projects to rehabilitate airstrips and associated facilities.

**5.25** The investment proposals for developments at Nadi Airport are substantial and should be assessed on economic grounds, together with the prospects of financing them from airport associated fees and user charges.

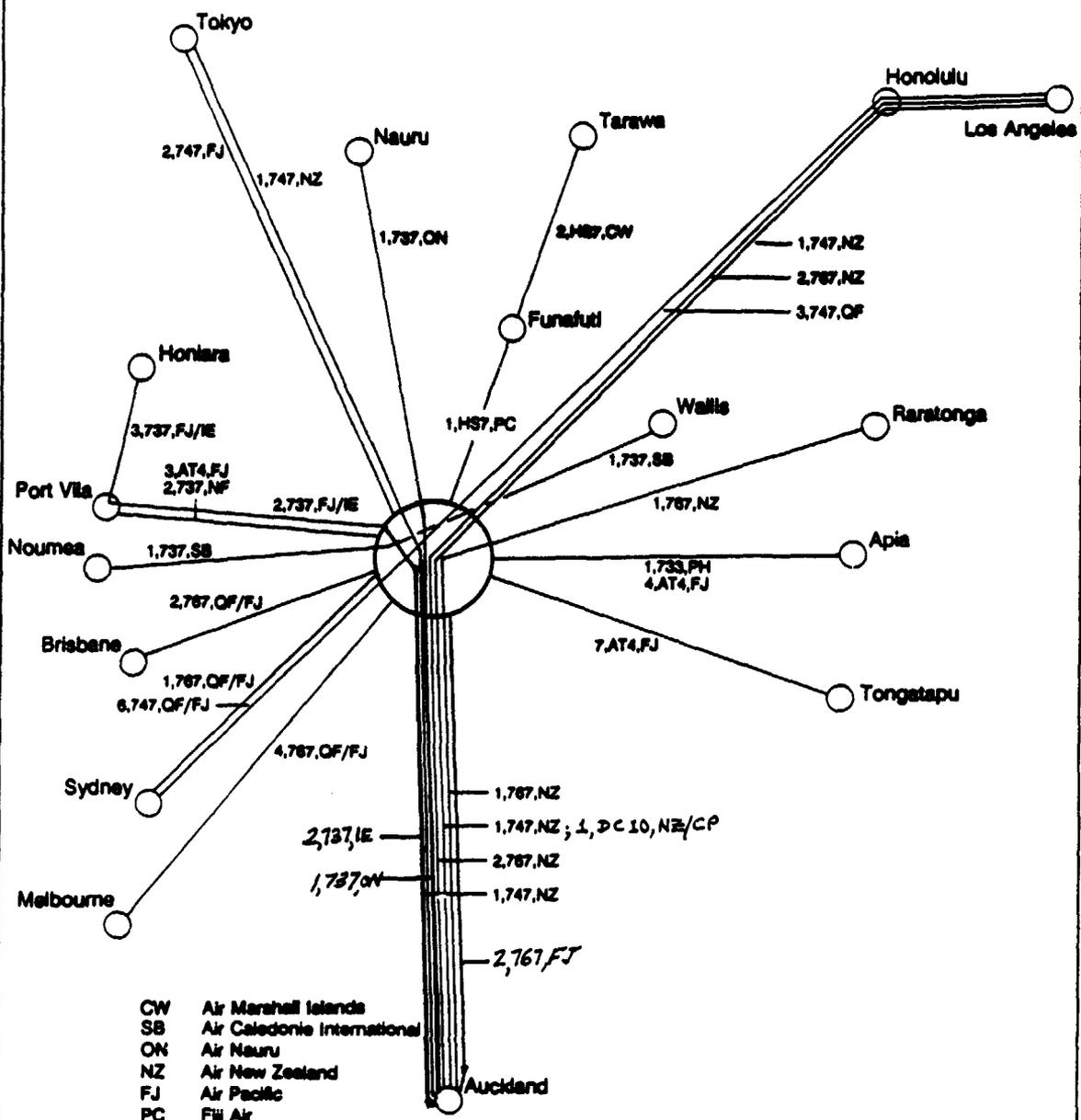
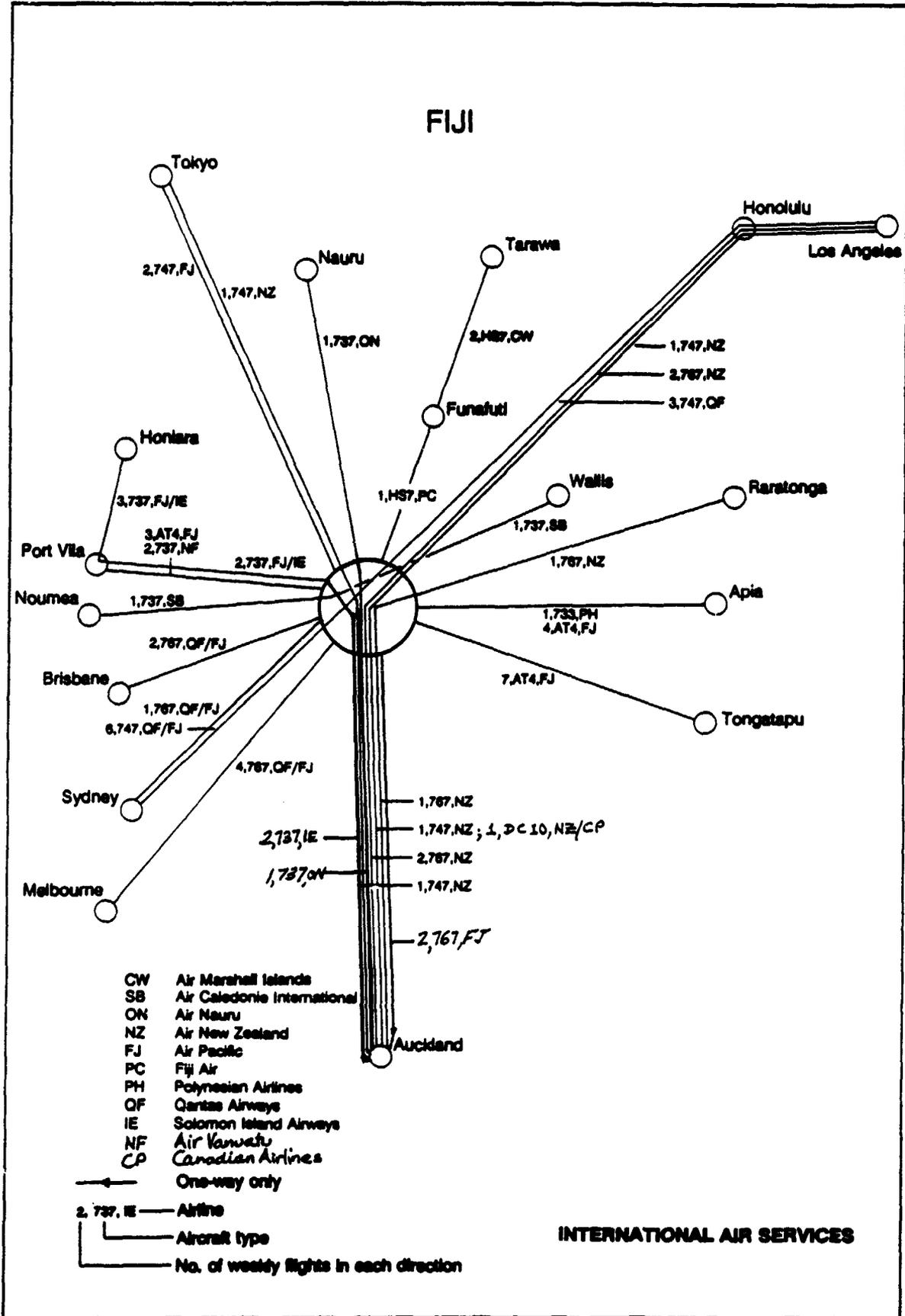
### Endnotes

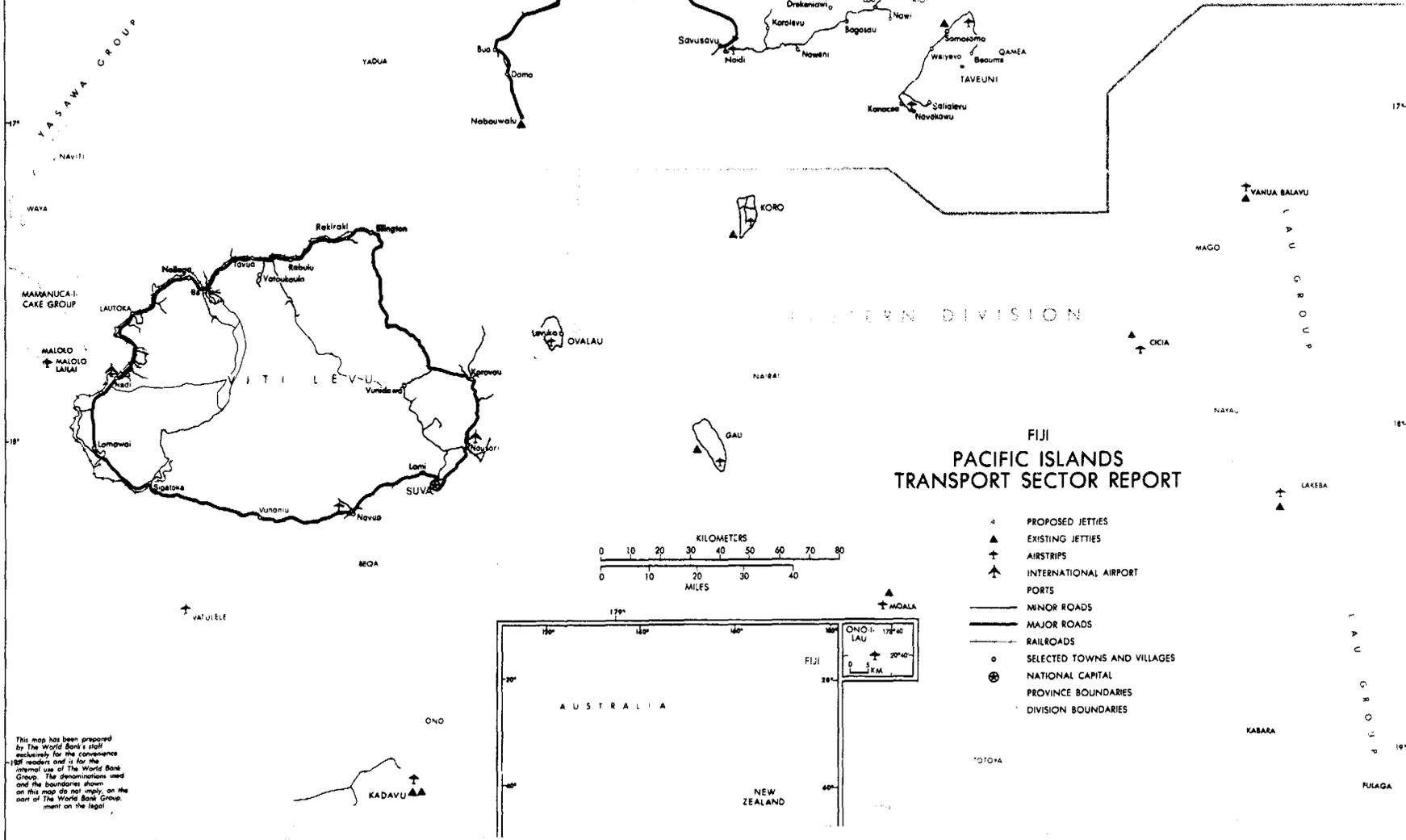
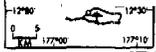
1. This transport sector survey is based on a mission to Fiji February 18-21, 1991. The mission members were Colin Gannon (Senior Economist and mission leader) and David Bray (consultant). A draft of this report was discussed with the Government of Fiji July 13-14, 1992.
  2. See World Bank (1989).
  3. The five other South Pacific island countries which were members of the World Bank at the time of this study were Kiribati, Solomon Islands, Tonga, Vanuatu and Western Samoa.
  4. The World Bank country study of the Pacific Island Economies (World Bank, 1991a) presents a more detailed review of the Fiji economy.
  5. As of June 1992 this ministry was replaced by three separate ministries: Ministry of Tourism, Ministry of Energy and Rural Electrification, and the Ministry of Civil Aviation and Foreign Affairs.
  6. In 1992 the name of this ministry was modified to become Infrastructure, Public Works and Maritime.
  7. This arrangement was discontinued in 1992, the vessels involved were transferred to the National Trading Corporation (formerly the National Marketing Authority) for shipment of agricultural commodities.
  8. Major progress has been made recently in the management and budgeting for road maintenance. The road inventory (as of 1990) is 95 percent complete and a separate budget for periodic and routine road maintenance has been established (as of 1992). In addition, the Public Works Department, as part of various assistance projects, has established a number of very valuable maintenance tools. These include a detailed annual road maintenance report which covers key areas such as traffic statistics, budget and expenditure, technical resources, monitoring, unit costs and projected requirements. Appropriately tailored, these tools would be useful to other PMCs, for example, within the context of "twinning" arrangements.
  9. A full assessment of the separable/joint cost elements in these estimates has not been undertaken.
  10. Revised Traffic Act and Regulations have been drafted and these are being progressed to legislation. Many positive revisions are covered including raising legal axle load limits, simplification of the monitoring/enforcement of vehicle weight regulations (portable scale certification and improvement of DRT officers) and heavier penalties for overloading.
  11. It is understood that external assistance is no longer being sought for replacement of Korotogo and Vatukarasa Bridges which are the two remaining single-lane bridges on Queens Road. The bridges have an estimated cost of F\$1.75 million and estimated economic rates of return of 18 and 8 percent, respectively.
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12. **Ro-Ro transshipment over Suva of containers destined for Lautoka is an alternative to movement by road. A joint venture involving PAF stevedoring and Marine Pacific was set up to offer this service, however, it did not proceed. Given the time difference (eight hours by road and three days by sea) pricing and marketing of a Ro-Ro service are crucial.**
  13. **The equipment may become a financial burden to CAAF. It was financed, in part, with a concessional bilateral loan for which the borrower incurs the exchange risk. Moreover, the loan, which was used to acquire some equipment with economic lives of about ten years, has a ten year grace period, with repayment over a subsequent twenty-year period.**
  14. **Air Pacific has since proceeded with this project independently and the facility was recently completed.**
  15. **As noted above, very substantial progress has been made recently (1992) by the Government. A substantial increase in maintenance funding was made in the 1992 Budget. In addition, the Public Works Department has developed valuable procedures for the management of road maintenance.**
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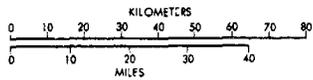
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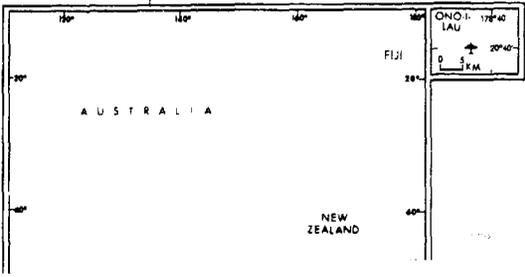




# FIJI PACIFIC ISLANDS TRANSPORT SECTOR REPORT



- ▲ PROPOSED JETTIES
- ▲ EXISTING JETTIES
- ✈ AIRSTRIPS
- ✈ INTERNATIONAL AIRPORT
- ✈ PORTS
- MINOR ROADS
- MAJOR ROADS
- RAILROADS
- SELECTED TOWNS AND VILLAGES
- ⊙ NATIONAL CAPITAL
- PROVINCE BOUNDARIES
- DIVISION BOUNDARIES



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