

**HFS Technical Report No. 7**

**HEALTH FINANCING IN FIJI:  
THE ROLE OF AND POTENTIAL FOR  
COST RECOVERY**

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**Submitted to:**

**The Health Services Division  
Office of Health  
Bureau for Research and Development  
Agency for International Development**

**June 1992**

**Health Financing and Sustainability (HFS) Project**

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**A.I.D. Contract No. DPE-5974-Z-00-9026-00**

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## ACKNOWLEDGEMENTS

This report could not have been completed without the overwhelming and generous support of a number of people. Special gratitude is due to Dr. Peni Rika, Director of Hospital Services for his personal involvement in this undertaking. In addition, Dr. Sakeo Varea, Permanent Secretary for Health, graciously extended his full support to this study, and provided useful input throughout this effort. The Ministry of Health officials have clearly recognized the importance of health financing issues to health sector operations, and their willingness and eagerness to tackle these complex and difficult issues is to be commended. They smoothed the way for data collection efforts at every step.

The staff of the Ministry of Health were both helpful and a pleasure to work with, as numerous extremely busy people were happy to take the time to search out data that was needed and carefully explain them. Personnel at the MOH headquarters, as well as at the individual facilities visited, demonstrated commendable competence as well as dedication to their jobs. Many thanks go to the staffs of CWM, Lautoka, Nadi, and Sigatoka Hospitals, Valelevu Health Center, and the Government Pharmacy for their cooperation. Particular mention should be made of Mr. Ami Chand and Mr. Jagdish Singh of the MOH Accounting Office, and Mr. Akuila Turaganiqali of CWM Hospital, for outstanding assistance they provided in tracking down pieces of data.

Dr. Patrick Lowry of USAID/Suva provided limitless guidance and enthusiasm for this entire effort. Dr. David Calder and Manoa Bale of USAID/Suva were also valuable sources of information and encouragement.

Other colleagues in the area of health financing willingly shared the benefits of their expertise and experience to inform this paper: Debra McFarland of Emory University, and Glen Haydon, Wesley McGavock, and Steven Siporin of Mercy International Health Services were a pleasure to work with and learn from.

Gratitude is also due Taivei Kwan and Temalesi Tekei of USAID/Suva for their tireless, cheerful, and expert support.

Any errors or omissions contained in this report, however, are those of the authors, and should not be attributed to any of the aforementioned people.

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## LIST OF ACRONYMS

|              |  |
|--------------|--|
| ALOS         | Average length of stay   |
| CWM          | Colonial War Memorial Hospital   |
| FNPF         | Fiji National Provident Fund   |
| FSM          | Fiji School of Medicine  |
| GDP          | Gross Domestic Product   |
| GNP          | Gross National Product   |
| GOF          | Government of Fiji   |
| HFS          | Health Financing and Sustainability Project  |
| HIES         | Household Income & Expenditure Survey  |
| MOF          | Ministry of Finance and Economic Planning  |
| MOH          | Ministry of Health   |
| USAID/RDO/SP | U.S. Agency for International Development, Regional Development Office for the South Pacific |
| VAT          | Value-Added Tax  |

## PREFACE

Health Financing and Sustainability (HFS), a five-year project of the Health Services Division, Office of Health, Bureau of Research and Development of the Agency for International Development (AID), begun in September 1989, provides technical assistance, conducts applied research, and disseminates information about health financing and organization in developing countries. The project's purpose is to influence policy change, assist in policy implementation and demonstrate and evaluate the effects of alternative policies and mechanisms for financing health services.

AID assigned HFS to work in five technical areas:

- resource generation through cost recovery
- social financing of demand
- resource use, allocation, and management
- public-private collaboration
- costing and delivery of services

HFS assignments that focus on one of the technical areas often involve interrelationships with one or more of the others. HFS also gives attention to issues of quality of care and equity of access in all of its assignments.

HFS strives through all its work to enhance the sustainability of financing for health services and programs. HFS also attempts to amplify the local capacity to create, implement, monitor, and evaluate financing policies for health. HFS accomplishes this through on-the-job training of host-government counterparts, by working with local consultants, and by helping governments establish the capacity to address health financing issues.

The present report is an example of technical assistance conducted by HFS, where technical areas are integrated, on-the-job training is provided, and options for policy change are provided. The authors of the report are an HFS staff member, economist Holly Wong, and a Fijian Ministry of Health official, Dr. Salik Govind, who took leave to work on the assignment.

In this particular case, in Fiji, HFS provides options for improvement of the cost-recovery system. The assignment also integrates quality and access issues, resource-allocation analysis, social financing considerations, cost analysis, and implementation recommendations. HFS built local capacity by pairing

external and local consultants to do the work. Finally, HFS makes recommendations about the establishment of a planning and analytical unit for health financing in Fiji's Ministry of Health. Such a unit would enable the MOH to carry out recommended reforms and formulate policy responses to future financing issues. As a result of this report and companion work on health insurance, the Ministry of Health has requested HFS assistance with a series of workshops to undertake health financing policy reforms.



## EXECUTIVE SUMMARY

### OBJECTIVES

This study was carried out at the request of the USAID Regional Development Office for the South Pacific and the Fijian Ministry of Health (MOH). Its objectives were to assess the existing cost recovery system in the health sector and to examine the potential for policy reform, if needed.

In particular, this study analyzes the costs of providing services at government hospitals, assesses current fee structures at hospitals and the revenue generated, and examines means testing mechanisms for protecting the poor. Based on available information, it was determined at the start of this study that estimates of costs of services would be made for two divisional hospitals, two subdivisional hospital, and one urban health center.

### HEALTH FINANCING IN FIJI

Health care services in Fiji are currently provided and financed primarily by the government. Government health services include 22 hospitals (including three specialty hospitals), 53 health centers, and 95 nursing stations. Health care coverage is quite good, and as a result, Fiji's performance on most health indicators compares favorably with neighboring countries and with middle-income countries.

Government health services are financed almost exclusively through general tax revenues. There are a limited number of user fees in place in health facilities. Outpatient visits are free, and inpatient charges are minimal. Inpatients can opt for paying wards, where they face detailed charges for diagnostic services. General inpatients pay a flat rate per day. There are fees for dental visits.

Patients are provided drugs free of charge at government facilities, as long as those drugs are available. Due to chronic shortages of drugs, a system of community pharmacies has developed, supported by community funds, which are used to purchase drugs and sell them at a slight mark-up.



For the health sector overall, revenue from fees at facilities represents two percent of expenditures.

## **OPTIONS FOR IMPROVING COST RECOVERY**

There are a number of options open to the MOH and the GOF at this point regarding how to improve cost recovery. MOH staff unanimously believe that the potential for cost recovery is good, and that patients will continue to utilize government services. This report discusses some of the options available, along with their respective advantages and disadvantages. Some of these options include charging at hospitals only vs. charging at all levels of facilities; charging all-inclusive fees vs. charging for individual services; charging differentiated prices based on age or income; and charging fees so as to encourage patients to use lower levels of health services when appropriate.

## **CONSIDERATIONS FOR INCREASING COST RECOVERY**

Regardless of exactly what form increased cost recovery may take in Fiji, some considerations will have a greater impact on its prospects for success. First, policy reform will have to be instituted to allow for retention of some or all revenues earned, at either the MOH level or the facility level. Without such policy reform, there will be no incentives for health personnel to make cost recovery work. Second, the current means testing system will have to be strengthened to protect access of the poor. Third, the quality of care in government health facilities will have to improve in order to earn revenues. Fourth, efforts to increase cost recovery will have to work hand-in-hand with efforts to establish an effective health insurance system. Fifth, a planning/studies unit is needed within the MOH to carry out necessary analyses and to oversee what could be very substantial efforts to expand cost recovery. The MOH is already aware of many of these issues and has been seriously deliberating them. This report may prove helpful to them in discussing these issues and options in one document.

## NEXT STEPS

Follow-up to this report will include a study of patients' perceptions of quality of care, information from which will provide guidance to the MOH in improving services simultaneous with instituting fees. In addition, a series of policy workshops focusing on health financing issues are currently being planned. The first of these will be for the MOH policymakers to review cost recovery options, reach consensus on what to do, and establish a strategy and plan for moving ahead. A second workshop will be held for a broader audience involved in health sector financing policy reform, including the Ministry of Finance & Economic Planning (MOF), and other public and private sector entities.

## 1.0 BACKGROUND ON FIJI AND THE HEALTH SECTOR

### 1.1 INTRODUCTION

The USAID Regional Development Office for the South Pacific (USAID/RDO/SP), along with the Fijian Ministry of Health (MOH), requested assistance from the Health Financing and Sustainability (HFS) Project to assess the current health financing system in Fiji. This assessment was to cover the areas of cost recovery and health insurance. The focus of this report is on the existing cost recovery system in Fiji, and options for its reform. The topic of health insurance is treated in a forthcoming HFS report by Deborah McFarland of Emory University and consultant to Abt Associates. Concurrent with these two studies, a team of consultants to USAID examined the potential for privatization of health services in Fiji.

As part of an assessment of the cost recovery system, USAID and the MOH requested analyses of trends in MOH expenditures, the cost of providing services at hospitals, fee structures and revenues generated by hospital services, and means testing systems. This report outlines the results of those analyses, as well as the methodologies used in conducting them.

This study was conducted during two field trips to Fiji; the first was for three weeks in October-November 1991, and the second was for two weeks in January 1992. It involved interviews with officials from the MOH and Ministry of Finance & Economic Planning (MOF), administrative staff, and medical personnel at several government health facilities, and review of records at facilities as well as ministry headquarters. The scope of work for this activity is attached as Appendix A.

### 1.2. MACROECONOMIC AND POLITICAL CONTEXT

Fiji is one of the most economically and socially developed small countries in the South Pacific. Comprising more than 300 islands, a third of which are inhabited, it has a population estimated at 736,000 in 1990. The last census was taken in 1986, and reported an urban/rural split of approximately 40 percent and 60 percent respectively. Recent statistics show the population to be made up of approximately 49 percent Fijians, 46 percent Indians, and 5 percent others.

Fiji's economy is primarily dependent on sugar and tourism. In recent years, manufacturing and fisheries have taken greater shares of economic production. Per capita income in 1990 was \$2500,<sup>1</sup> reflecting a 13 percent increase over the past two years.

The previous decade was a difficult one for Fiji, in both economic and political terms. From 1980-87, economic growth was slow, and with population and price increases, real per capita incomes declined. The sugar industry suffered from declines in worldwide terms of trade. The "events of 1987" marked a turning point for the country, resulting in dramatic shifts in the political environment, and paving the way for significant economic changes.

As an immediate aftermath of those events, economic performance plummeted, adversely affected by emigration, capital flight, and loss of investor confidence. The government budget was also dramatically reduced, and public sector employee salaries were cut by 15 percent across the board. However, a number of policies was instituted to spur economic recovery, the most important of which was incentives for export-oriented investment. There has also been a noticeable trend toward deregulation and decreased reliance on the public sector.

Many of these measures have had a strong effect on the economy, and real Gross Domestic Product (GDP) has been increasing at an average annual rate of 6.2 percent since 1988. Paid employment has increased by almost 15 percent, and much of this has come in the burgeoning manufacturing sector. Investors are returning to Fiji, and a recent World Bank report indicates that this country has the potential for faster progress than its neighboring island states.

### **1.3. THE HEALTH SECTOR**

The Government of Fiji is the principal provider and financier of health care services. The MOH is responsible for all services, and is organized into three geographic divisions (Central/Eastern, Northern, and Western). The MOH has a pyramidal structure, with divisional and specialty hospitals (three of each) at the top, followed by 16 subdivisional hospitals, 53 health centers, and 95 nursing stations. The divisional hospitals, Colonial War Memorial (CWM) in Suva, Lautoka, and Labasa, provide secondary and tertiary care, and serve as referral

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<sup>1</sup> All figures in this report are in Fijian dollars. The exchange rate is F\$ 1 = US\$ 0.7 (1991).

centers. The three specialty hospitals, all located in Suva, provide psychiatric, leprosy, and tuberculosis services.

All of the hospitals provide both inpatient and outpatient services. In addition, the subdivisional hospitals oversee primary health care efforts in their regions, and are responsible for preventive and promotive care as well.

In addition to these government facilities, there are a number of other services. There are two small mission-operated facilities; one is a 20-bed hospital (Ba Hospital) and one is a maternity hospital in Ra. Although both are run by church groups, they receive substantial subsidies from the government budget, and both have a number of MOH personnel on staff. There are also a number of other clinics, one run by the Public Service Association, and others run by private practitioners. There are currently approximately 90 private practitioners in Fiji, most providing general outpatient services. Private practitioners do not have admitting rights in government hospitals, and there are no private hospitals (although Ba Hospital is often referred to as a private hospital).

The Government Pharmacy, part of the MOH, supplies drugs and medical supplies for all government facilities. The Government Pharmacy obtains most of its drugs from the National Bulk Purchase Scheme, an autonomous unit which has a revolving account with which it purchases drugs from overseas. The Bulk Purchase Scheme operates as a business enterprise, although its revenues are all turned over to the MOF. The Bulk Purchase Scheme sells drugs to the Government Pharmacy at a mark-up of two and a half percent. It also provides drugs to private pharmacies and community pharmacies at a mark-up of about 20 percent.

Because of frequent shortages of drugs within government facilities, a system of community pharmacies has developed, funded by local communities. These facilities purchase drugs from the Bulk Purchase Scheme, and are not subject to the same limitations on drugs and budgets as government facilities. As a result, they are often able to supply drugs that cannot be found in government facilities. These pharmacies sell drugs to patients (with prescriptions) at a small mark-up, and prices are thus generally lower than in private pharmacies. Revenues are usually used to buy additional drugs, and to cover the salary of the pharmacist and other administrative expenses. Very often, these community pharmacies are co-located with government pharmacies within health facilities; one room is divided in half, with respective community and government pharmacy

supplies on either side, with the room having two windows side by side to which patients can come to obtain drugs.

Given the number of government health facilities, particularly at the lower levels of the pyramidal structure, access to health services is good. In 1991, the MOH had established posts numbering 2,868, and unestablished staff of 1,045. It must be noted, of course, that some of those posts are unfilled, particularly for senior medical staff. Many physician positions are currently being filled by expatriate staff, including a number of doctors supplied through the U.N. Volunteer Program. After the events of 1987, high rates of emigration had an unfavorable impact on the health sector, particularly physicians. The health sector has not yet been able to overcome earlier losses, and continues to face a shortage of trained medical staff.

Nevertheless, Fiji's performance on health infrastructure indicators is quite good:

|                             |       |
|-----------------------------|-------|
| Population per hospital bed | 421   |
| Population per physician    | 2,500 |
| Population per nurse        | 500   |

These figures compare favorably with neighboring countries, as well as with low to middle-income countries around the world.

Health status indicators are similarly commendable. Life expectancy at birth is 61 years for men, 65 years for women. The infant mortality rate is in the range of 20/1000. Per capita outpatient visits in 1989 averaged 3.1, and inpatient admissions averaged 0.18 per capita.

The population growth rate is now about two percent per annum. The population structure is still concentrated in youth, with approximately 40 percent under the age of 15, and only five percent over the age of 65. This may begin to change, however, as health status improves and lifespans lengthen.

Morbidity and mortality patterns in Fiji resemble those in industrialized rather than developing countries. This is not surprising given the relatively high level of income. In this sense, the health sector is undergoing a transition period in which cardiovascular disease, cancer, and diabetes are



emerging as the major problems. These changing disease patterns will pose additional challenges to the health sector, by requiring different types of disease management procedures, and options for long-term care.

#### **1.4. THE HEALTH FINANCING SYSTEM**

Publicly provided health care services in Fiji are financed almost exclusively through general tax revenues. In 1990, revenues earned from user charges at health facilities accounted for two percent of operating costs of those facilities. This percentage, while very low, is not surprising given the current system of user charges.

The existing fee system in Fijian health care facilities is oriented toward inpatient care and dental services. General outpatient visits are free of charge. Visits to specialty outpatient clinics at hospitals such as CWM and Lautoka entail charges of \$2 to \$8. Dental charges are \$2 per extraction, with additional charges for more complicated services.

Inpatients face a charge of 50 cents per day in the general wards. This fee is all-inclusive, and covers the bed, medical attention, drugs, diagnostic services, food, and any special procedures, such as surgery. In the divisional hospitals, patients have the option of electing to be admitted to paying wards, in which they have semi-private or private rooms. Paying patients face charges of \$5-\$10 per day. These fees, unlike in the general wards, cover only medical attention, the bed, and food. Additional items such as diagnostic tests, drugs, and medical procedures are all charged separately.

Exemptions are granted in many cases for those unable to pay, as well as for those with particular types of status. The latter cases include children under 15 years of age, civil servants, veterans, and military and police personnel. Means testing for indigent patients is conducted in two ways. First, those unable to pay can obtain certificates of exemption from District Officers, which exempt them from paying for a variety of public services, including health care, for one calendar year. In principle, these certificates are granted to the unemployed, and others falling below the poverty line. In practice, as provided through anecdotal evidence from medical personnel, there are numerous cases of patients having certificates of exemption while clearly evidencing the ability to pay for services.

On the other hand, many patients who would be entitled to such certificates do not have them. It is not clear whether this is due to not seeking a certificate or being denied one. In these cases, the medical officer in charge at a health facility has the authority to waive fees for patients who claim to be unable to pay for services. The number of patients with exemption certificates is relatively small at this time, probably due in large part to the low levels of fees. For example, in 1990 at Lautoka Hospital, 15 inpatients had exemption certificates, representing 0.1 percent of all inpatient admissions. The numbers of patients requesting waivers at the facility level are not recorded.

In general, patients are provided with drugs free of charge. However, given limited budgets, shortages of drugs frequently occur. In response to this problem, a system of community pharmacies has developed, as described in the previous section. These pharmacies are one aspect of the type of effort put forth by Boards of Visitors, which are essentially local community groups supporting health care services. Many boards play an important role in supporting government health facilities, through fundraising and provision of administrative assistance. For example, the Board of Visitors at Sigatoka Hospital raises about \$200 per month on an ongoing basis, and sponsors special fundraising efforts that bring in from \$4,000 to \$10,000 per year. The Board of Visitors for Nadi Hospital was instrumental in securing a recent donation of an ambulance from private sector companies.

Although these community efforts are small in relation to MOH expenditures, they are nevertheless important from the standpoint of community commitment and resourcefulness. Two subdivisional hospitals had innovative ways of raising needed revenues and securing needed materials for the hospitals. The Board of Visitors of one oversees the operations of a small snack bar on hospital premises, located next to the outpatient clinic. The store owner pays rent to the Board, and thus provides another source of revenue to the hospital, while also providing a useful service to patients and other visitors to the hospital. Another Board solicited and obtained donations from a local company, which were used to build a needed mortuary shed, on which the company's name is prominently displayed.

Aside from government expenditures and community fundraising, there is a small contribution to financing government services from the health insurance market. This issue is treated in much more detail in a forthcoming report by HFS consultant, Deborah McFarland. The contribution of health insurance to public

sector facilities, however, is currently quite small. For example, in 1990, CWM Hospital had 80 patients covered by insurance programs, representing \$4,989 in revenue. These figures are minuscule in comparison to total admissions of over 18,000, and to total revenues of \$299,000. Similarly, Lautoka Hospital had 52 inpatients (of more than 14,000) covered by insurance in 1991.

There are limited data on out-of-pocket expenditures for health care by patients. Given the low level of fees in government facilities, that amount is likely to be small. On the other hand, patients are paying for drugs, either at community or private pharmacies. Some patients are also going to private practitioners, where charges for routine consultations start at \$8. Ba Hospital, the "private" hospital run by the Methodist Church, also charges fees above the level of government facilities.<sup>2</sup>

A recent report estimated private outlays for medical care, using data from the 1983 update to the Household Income and Expenditure Survey (HIES) conducted by the Bureau of Statistics. It estimated that per capita expenditure for all health care services totalled \$20 per year, representing three percent of total household expenditure per capita of \$676.<sup>3</sup> While updated figures would be useful (and may be available later this year upon completion of the 1991 update of the HIES), these data at least indicate a certain amount of willingness to pay for health care on the part of the population.

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<sup>2</sup> The Fiji Times reported on February 1, 1992 that the hospital was facing closure due to staff shortages. Patients complained that the lack of a government hospital in their subdivision required them to pay higher fees than they would otherwise face.

<sup>3</sup> Fiji: Performance and Prospects of Education, Training and Health Services, The World Bank, Report No. 8119-FIJ, June 1990.

## 2.0. GOVERNMENT HEALTH EXPENDITURES

### 2.1. MINISTRY OF HEALTH AND GOVERNMENT OF FIJI EXPENDITURES

As shown in Table 1, MOH expenditures for the past five years have fluctuated in both current and real terms, as reflected also by their levels in proportion to total government expenditures and GDP. In 1987, MOH operating expenditures totalled \$33 million. This figure dropped by 12 percent in 1988 as there were widespread budget cuts following political events and austerity measures. However, that 12 percent cut is significantly less than the 30 percent across-the-board cuts that were instituted for most other sectors. Since then, operating expenditures increased almost 20 percent per year; the 1991 figure shown is an estimate only, and based on comparisons between estimates and actual figures for the preceding years, the actual figure is likely to be higher. For each of the three preceding years, actual expenditures exceeded estimated or approved expenditures by approximately 20 percent.

In real terms, the picture is slightly different, although the general trend remains the same. When one takes inflation into account, it is clear that although expenditures have been rising since a tumultuous drop (21 percent decrease) in 1988, expenditures in 1990 still had not reached the levels attained in 1987.

Health expenditures on a per capita basis reflect the same movement. In 1987, real per capita expenditures on health were \$46; the same figure for 1990 was \$43.

As a proportion of total Government of Fiji (GOF) operating expenditures, the health sector has ranged from a low of 6.7 percent in 1988 to a high of 8.4 percent in 1987. Again, the same pattern is repeated, whereby after a precipitous drop in 1988, the health sector is slowly regaining ground, but has not yet been able to recover the position it held in 1987.

Fiji's seven to eight percent of total government expenditures allocated to the health sector does not compare favorably with other countries in the South Pacific. Based on information from the South Pacific Commission, neighboring countries spend from 10 percent (Cook Islands and Tonga) to 16 percent (Western Samoa) of total government expenditures on health. It should be noted, however, that without additional information on overall expenditures, a comparison of actual amounts and/or expenditure per capita cannot be made.

MOH operating expenditures have held a relatively steady proportion of GDP, 2.1 to 2.6 percent, since 1987.

| Table 1. Government of Fiji and Ministry of Health Operating Expenditures, 1987-1991 |          |          |          |          |          |
|--|----------|----------|----------|----------|----------|
|  | 1987     | 1988     | 1989     | 1990     | 1991     |
| Current MOH Operating Expenditures   | \$33,239 | \$29,214 | \$34,627 | \$40,939 | \$38,462 |
| Real MOH Operating Expenditures (1987 prices)  | \$33,239 | \$26,107 | \$29,334 | \$31,898 | \$28,272 |
| Real MOH Operating Expenditures Per Capita   | \$46.45  | \$36.29  | \$40.34  | \$43.49  | \$38.21  |
| MOH Operating Expenditures as % of Total GOF Expenditures                            | 8.4%     | 6.7%     | 7.7%     | 8.2%     | 7.8%     |
| MOH Operating Expenditures as % of GDP   | 2.6%     | 2.1%     | 2.2%     | 2.2%     | NA       |
| Population   | 715,532  | 719,465  | 727,104  | 733,450  | 740,000  |
| GDP/capita (current)   | \$1,818  | \$1,929  | \$2,213  | \$2,504  | NA       |
| GDP/capita (real)  | \$1,818  | \$1,724  | \$1,864  | \$1,951  | NA       |
| % increase real GDP  | -6.1%    | -5.2%    | 6.1%     | 4.7%     | NA       |
| Inflation index  | 100      | 111.9    | 118.7    | 128.3    | 136.0    |
| Note: 1991 figures are estimates.  |          |          |          |          |          |
| Source: Fiji Budget Estimates, Current Economic Statistics.                          |          |          |          |          |          |

## 2.2. ALLOCATION OF HEALTH RESOURCES

Table 2 shows MOH expenditures for the past five years (data for 1991 are actual figures through September 30, 1991) and their allocation across activities. Records maintained by the MOH track expenditures by the activities shown. These figures represent both operating and capital expenditures, but more detailed breakdowns are not available.

General administration includes central headquarters administrative operations as well as some research and teaching. Urban hospitals include the three divisional hospitals (CWM, Lautoka, Labasa) as well as three specialty hospitals (Tamavua, St. Giles, and P.J. Twomey). The remaining hospitals around the country are included as Subdivisional Hospitals. Drugs and medical supplies are tracked separately by this accounting system. This activity includes both the cost of supplies as well as the operations of the Government Pharmacy.

Based on figures in this table, the hospital sector accounted for approximately 70 percent of health expenditures during the past several years. At the same time, rural facilities and public health services accounted for a consistently decreasing proportion of sectoral expenditures, falling from 12.5 percent in 1987 to 8.3 percent in 1990. These figures are representative of most health sectors in developing countries around the world, and reflect a somewhat discouraging emphasis on hospital and urban curative care rather than primary and preventive care. However, a couple of caveats should be noted. First, the hospital figure includes urban health centers, where most of the activity is still focused on primary-level care. Second, most hospitals, but particularly the subdivisional hospitals, provide a significant amount of primary and preventive care. Admittedly, this should not be the role of hospitals, particularly the divisional (referral) hospitals; this issue is in fact one that can be addressed at least in part by a well-functioning referral system, backed by a fee structure that discourages overuse of higher levels of care.

On the other hand, to get a true picture of hospital expenditures it is necessary to allocate the expenditures for drugs and medical supplies to the hospital sector. Based on a review of Government Pharmacy records for 1989 (the latest year for which data are available), the allocation of drugs across health sector activities can be determined. These data are shown in Table 3.

These data clearly reinforce the disproportionate share of resources allocated to the hospital sector. Using these figures to allocate the 1990

expenditures on drugs and medical supplies to the different sectoral activities, the distribution of resources to hospitals (including urban health centers) increases to 78 percent of overall expenditures. On the other hand, because negligible amounts go to administration and the educational institutions, the relative share of rural medical stations and public health activities rises to 10 percent of total expenditures.

|                                    | Actual 1987 | % of total | Actual 1988 | % of total | Actual 1989 | % of total | Actual 1990 | % of total | nine months 1991 | % of total |
|------------------------------------|-------------|------------|-------------|------------|-------------|------------|-------------|------------|------------------|------------|
| General Administration             | 1,509.9     | 4.4%       | 1,336.7     | 4.5%       | 1,806.1     | 5.1%       | 2,381.5     | 5.8%       | 1,872.8          | 5.5%       |
| Urban Hospitals/ Health Centers    | 18,867.5    | 55.4%      | 16,125.7    | 54.8%      | 19,086.3    | 54.2%      | 21,953.0    | 53.0%      | 17,234.7         | 50.9%      |
| SubDivisional Hospital             | 4,867.2     | 14.3%      | 4,155.7     | 14.1%      | 5,344.8     | 15.2%      | 6,047.1     | 14.6%      | 5,258.1          | 15.5%      |
| Rural Medical and Nursing Stations | 3,214.1     | 9.4%       | 2,538.9     | 8.6%       | 2,799.3     | 7.9%       | 2,334.8     | 5.6%       | 1,787.4          | 5.3%       |
| Public Health Services             | 1,052.9     | 3.1%       | 871.3       | 3.0%       | 1,139.5     | 3.2%       | 1,135.4     | 2.7%       | 938.1            | 2.8%       |
| Drugs and Medical Supplies         | 2,631.2     | 7.7%       | 2,757.1     | 9.4%       | 3,081.8     | 8.7%       | 5,170.3     | 12.5%      | 4,691.2          | 13.9%      |
| Fiji School of Medicine            | 839.5       | 2.5%       | 642.9       | 2.2%       | 825.5       | 2.3%       | 1,081.7     | 2.6%       | 1,051.1          | 3.1%       |
| Fiji School of Nursing             | 809.6       | 2.4%       | 752.9       | 2.6%       | 850.5       | 2.4%       | 1,010.4     | 2.4%       | 790.8            | 2.3%       |
| Old People's Home                  | 270.9       | 0.8%       | 265.9       | 0.9%       | 305.0       | 0.9%       | 299.7       | 0.7%       | 217.4            | 0.6%       |
| Total                              | 34,062.8    |            | 29,447.1    |            | 35,238.8    |            | 41,413.9    |            | 33,841.6         |            |
| Source: Annual budget estimates.   |             |            |             |            |             |            |             |            |                  |            |



| Table 3. Allocation Of Drugs Across Health Sector Activities, 1990 |                                       |
|--|---------------------------------------|
| Health Sector Activity   | Percentage of Total Drug Expenditures |
| Divisional and Specialty Hospitals                                 | 63.1%                                 |
| Subdivisional Hospitals  | 16.4%                                 |
| Health Centers   | 10.9%                                 |
| Dental Clinics and Pathology Labs                                  | 4.3%                                  |
| Nursing Stations   | 2.7%                                  |
| Medical and Nursing Schools  | 0.4%                                  |
| Military Hospital  | 0.4%                                  |
| Other Institutions   | 1.9%                                  |
| TOTAL  | 100.1%                                |
| Note: Percentages do not sum to 100 due to rounding.               |                                       |
| Source: Quarterly Costing Reports, 1989, Government Pharmacy.      |                                       |

A break-down of health expenditures by line item is shown in Table 4. These data show both operating and capital expenditures. It should be noted that budget estimates provide figures for aid-in-kind from overseas donors. However, actual expenditure figures do not provide details on aid amounts received.

The line item receiving the largest proportion of health sector expenditures is personnel (including both established and unestablished staff), accounting for almost 80 percent of operating expenditures. This percentage has dropped slightly from a high of 80 percent in 1987 to 74 percent in 1990. Still, this accounts for an overwhelming portion of the overall allocation, leaving limited resources with which to support personnel. This distribution is reflected in that fact that health sector personnel unanimously agree that one of the most critical problems facing them is the shortage of needed supplies. This extends beyond drugs, which in many cases can be supplemented by provisions from community pharmacies, to basic necessities such as syringes and bandages. The next largest item is purchase of goods and services, which includes drugs and all other necessary supplies. The proportion of overall expenditures for this line item has increased from 16 percent in 1987 to 21 percent in 1990.

Table 4: Fiji Ministry of Health Budgets

|                              | Actual<br>1987  | Estimate<br>1988 | Actual<br>1988  | Estimate<br>1989 | Actual<br>1989  | Estimate<br>1990 | Actual<br>1990  | Estimate<br>1991 |
|------------------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|-----------------|------------------|
| Established Staff            | 22,300.1        | 16,352.5         | 18,515.1        | 20,150.5         | 22,041.7        | 21,652.1         | 24,729.7        | 25,112.2         |
| Unestablished Staff          | 4,324.1         | 3,057.0          | 3,976.9         | 3,445.5          | 4,768.8         | 3,653.3          | 5,578.3         | 4,553.7          |
| Travel and Communications    | 608.6           | 360.4            | 526.6           | 435.0            | 638.8           | 550.0            | 772.6           | 621.9            |
| Maintenance & Operations     | 339.1           | 185.6            | 330.6           | 202.6            | 418.8           | 335.6            | 530.1           | 393.7            |
| Purchase of Goods & Services | 5,215.0         | 4,162.9          | 5,438.6         | 4,570.4          | 6,429.9         | 6,576.6          | 8,679.4         | 6,977.6          |
| Operating Grants & Transfers | 321.1           | 327.2            | 341.5           | 356.2            | 506.4           | 498.2            | 474.7           | 635.0            |
| Special Expenditures         | 130.8           | 9.4              | 85.1            | 10.3             | 22.6            | 161.3            | 174.2           | 168.3            |
| <b>Total Operating</b>       | <b>33,238.8</b> | <b>24,455.0</b>  | <b>29,214.4</b> | <b>29,170.5</b>  | <b>34,827.0</b> | <b>33,427.1</b>  | <b>40,939.0</b> | <b>38,462.4</b>  |
| Capital Construction         | 605.8           | 102.0            | 126.3           | 140.0            | 231.8           | 1,190.0          | 954.0           | 1,097.0          |
| Capital Purchase             | 218.2           | 316.0            | 106.3           | 7.0              | 180.0           | 0.0              | 0.0             | 558.0            |
| Capital Grants & Transfers   | 0.0             | 0.0              | 0.0             | 0.0              | 0.0             | 0.0              | 0.0             | 0.0              |
| <b>Total Capital</b>         | <b>824.0</b>    | <b>418.0</b>     | <b>232.6</b>    | <b>147.0</b>     | <b>411.8</b>    | <b>1,190.0</b>   | <b>954.0</b>    | <b>1,655.0</b>   |
| <b>TOTAL EXPENDITURE</b>     | <b>34,062.8</b> | <b>24,873.0</b>  | <b>29,447.0</b> | <b>29,317.5</b>  | <b>35,238.8</b> | <b>34,617.1</b>  | <b>41,893.0</b> | <b>40,117.4</b>  |
| Total Aid-in-Kind            | 0.0             | 1,152.6          | 0.0             | 3,955.0          |                 | 4,378.7          |                 | 6,638.8          |
| <b>Staff Summary</b>         |                 |                  |                 |                  |                 |                  |                 |                  |
| Established Posts            |                 | 2,869            |                 | 2,876            |                 | 2,870            |                 | 2,868            |
| Unestablished Staff          |                 | 937              |                 | 960              |                 | 964              |                 | 1,045            |

Table 4. Continued

| Fiji Ministry of Health Budgets (F\$000) (continued from previous page) |                |                  |                |                  |                |                  |                |                  |  |
|---|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|--|
|   | Actual<br>1987 | Estimate<br>1988 | Actual<br>1988 | Estimate<br>1989 | Actual<br>1989 | Estimate<br>1990 | Actual<br>1990 | Estimate<br>1991 |  |
| Total GOF Operating Budget  | 394,512.1      | 364,476.2        | 434,573.1      | 421,210.3        | 454,316.5      | 446,907.5        | 500,568.8      | 490,863.4        |  |
| Health Percentage   | 8.4%           | 6.7%             | 6.7%           | 6.9%             | 7.7%           | 7.5%             | 8.2%           | 7.8%             |  |
| Total GOF Capital Budget  | 49,537.3       | 56,444.2         | 63,527.2       | 118,645.4        | 91,904.8       | 91,209.7         | 90,239.2       | 114,531.6        |  |
| Health Percentage   | 1.7%           | 0.7%             | 0.4%           | 0.1%             | 0.4%           | 1.3%             | 1.1%           | 1.4%             |  |
| Total GOF Expenditure   | 444,049.4      | 420,920.4        | 498,100.3      | 539,855.7        | 546,221.3      | 538,117.2        | 590,808.0      | 605,415.0        |  |
| Health Percentage   | 7.7%           | 5.9%             | 5.9%           | 5.4%             | 6.5%           | 6.4%             | 7.1%           | 6.6%             |  |
| Health Sector Revenues  |                |                  |                |                  |                |                  |                |                  |  |
| Fumigation/Quarantine   | 91.9           | 90.1             | 68.5           | 100.0            | 126.9          | 145.4            | 69.9           | 145.0            |  |
| Hospital  | 752.8          | 700.0            | 674.3          | 900.0            | 722.8          | 746.6            | 734.8          | 772.0            |  |
| Family Planning Materials   | 21.4           | 20.0             | 11.3           | 20.0             | 0.0            | 0.1              | 0              | 0.1              |  |
| Fiji School of Medicine   | 301.5          | 50.0             | 191.5          | 100.0            | 237.5          | 380.5            | 156.2          | 300.0            |  |
| Central Nursing School  | 0.1            | 1.0              | 0.6            | 1.0              | 0.6            | 0.7              | 8.6            | 0.7              |  |
| Medical Services, Nadi Airport  | 0.0            | 5.0              | 0.0            | 5.0              | 0.0            | 0.0              | 0              | 0.0              |  |
| Sales of Supplies/Services  | 0.8            | 1.0              | 0.0            | 1.0              | 0.0            | 1.0              | 0              | 1.0              |  |
| Total   | 1,168.5        | 867.1            | 946.2          | 1,127.0          | 1,087.8        | 1,274.3          | 969.5          | 1,218.8          |  |

Capital expenditures reflect a greater degree of fluctuation, not surprising since they represent what are often one-time expenditures. Still, these expenditures follow the same general pattern as operating expenditures noted above; that is, they dropped precipitously in 1988 (a 72 percent drop) and have been gradually increasing, but are still below the level of 1987. It should also be noted that the majority of these expenditures (in fact, 100 percent in 1990) went to capital construction, with less than half going towards capital purchase (e.g., equipment).

The capital budget for health has ranged from 0.4 percent to 1.7 percent of total GOF capital expenditures. When these are combined with operating expenditures, the health sector's relative share of total government expenditures ranges from 5.9 to 7.7 percent.

Table 4 also provides details on revenues earned in the health sector. These come from a variety of sources, including fumigation/quarantine services, hospital fees (which also include revenues earned by other health facilities, such as dental clinics in health centers), sale of family planning materials, Fiji School of Medicine and Fiji School of Nursing fees, medical services at Nadi Airport, and miscellaneous sales of supplies or services. The largest portion of these revenues stem from hospital fees, which averaged approximately \$700,000 over each of the past four years (1987-1991). Total health sector revenues represented three percent of total expenditures from 1987-1989; this figure dropped slightly to two percent in 1990.

### 3.0. COST ANALYSES

#### 3.1. THE ANALYTICAL FRAMEWORK

The analyses carried out for this study involved estimating the unit costs of providing different services at two divisional hospitals (CWM and Lautoka), two subdivisional hospitals (Nadi and Sigatoka), and one health center (Valelevu). These services included: inpatient, outpatient, laboratory, radiology, pharmacy, and dental. Using the resulting cost estimates, a further analysis comparing costs and revenues was conducted.

The methodology used for these analyses was essentially a step-down allocation, an accounting-based study of unit costs. Using this methodology, all expenditures are assigned to specific departments. Those which are not easily identifiable as belonging to particular departments (e.g., overhead costs) are allocated on the basis of some criteria, such as square footage, numbers of personnel, etc. This process is described further in Appendix B, Detailed Methodology for Cost Analyses.

The process of carrying out a step-down analysis of costs is, of course, enormously simplified if there is a good cost accounting system in place. Without that, it is still possible to conduct an analysis, but certain assumptions and estimates must be made, and the accuracy of results hinges on the validity of those assumptions. Moreover, the absence of a cost accounting system hinders a facility's ability to track costs and measure its own performance. Facility administrators and department heads would greatly benefit from such a system, as it would allow them to examine hospital operations on a periodic basis (e.g., quarterly or monthly) and institute changes if they are required.

One last point should be made with respect to the results. Because of the methodology used, these results represent average costs. Of course, for items such as x-ray exams and laboratory tests, there is a wide range of services, and an average cost cannot fully characterize that entire range. Without additional data, a more explicit analysis was not possible. However, these figures can still provide policymakers and administrators with a good understanding of the cost of operations.<sup>4</sup>

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<sup>4</sup> A recent World Bank mission to Fiji also estimated the unit cost of services at hospitals, but used a completely different methodology to do so. It

In the case of inpatient services, the cost per patient day was an average across all types of services, including both paying and general wards.<sup>5</sup> These figures included the cost of the bed, drugs prescribed, and all medical attention (both physician and nursing staff, as well as any surgical or other medical procedures except for diagnostic exams such as x-ray and lab tests carried out). The cost of outpatient services included both medical attention and drugs prescribed.

### 3.2. COST ANALYSIS RESULTS

Table 5 summarizes the results of the various analyses for each of the five facilities studied. The following sections, 5.2.1 through 5.2.5., provide further information on costs and revenues.

| Table 5. Summary of Cost Analysis Results, All Facilities, 1990 |              |                  |               |                   |          |
|---|--------------|------------------|---------------|-------------------|----------|
| Unit  | CWM Hospital | Lautoka Hospital | Nadi Hospital | Sigatoka Hospital | Valelevu |
| Cost per inpatient day  | \$52         | \$53             | \$57          | \$55              |          |
| Cost per outpat. visit  | \$ 7         | \$ 5             | \$ 2          | \$ 6              | \$ 1     |
| Cost per x-ray exam   | \$10         | \$ 8             | \$10          | \$13              |          |
| Cost per lab test   | \$ 3         | \$ 1             | \$ 2          | \$ 3              |          |
| Cost per dental visit   | NA           | \$11             | \$ 4          | \$2               | \$ 1     |

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utilized an ordinary least squares regression estimate, and produced results very similar to those produced in this report. For the year 1987, it estimated average cost per inpatient day at \$39-\$51, and cost per outpatient attendance at \$5-\$10.

<sup>5</sup> Appendix B explains in more detail the rationale for not costing general and paying beds separately.

|  |       |       |       |       |  |
|--|-------|-------|-------|-------|--|
| Cost per inpatient stay  | \$387 | \$384 | \$236 | \$277 |  |
| Revenue per inpat. stay  | \$ 4  | \$ 6  | \$ 1  | \$ 2  |  |
| Revenue as % of cost   | 1%    | 2%    | 0.4%  | 1%    |  |
| Sources: MOH Accounting Unit, MOH Statistical Unit, Government Pharmacy, individual facility records, own calculations |       |       |       |       |  |

### 3.2.1. Colonial War Memorial Hospital (CWM)

Colonial War Memorial (CWM) is one of the country's three divisional hospitals and the primary referral hospital, located in the capital city of Suva. It has 416 beds, and provides most medical and diagnostic services. An extension to the current building has just broken ground, funded by Japanese donors, and will be completed in 1993. CWM has a staff of over 700, including 100 physicians and approximately 230 nurses. In 1990, there were over 18,000 admissions, and over 230,000 outpatient visits.

Total operating expenditures for CWM Hospital in 1990 were \$10.3 million<sup>6</sup> (for more detail, see Appendix C, Detailed Costing Data). Of that amount, \$7.3 million were personnel costs, representing 71 percent of the total. Drug purchases totalled \$1.3 million, accounting for 12 percent of the overall amount.

The results of the step-down allocation of costs are shown in the following table.

| Service              | Costs       | % of total |
|----------------------|-------------|------------|
| Inpatient Department | \$5,922,296 | 57%        |

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<sup>6</sup> The amounts shown as "total allocation of costs by service" in the facilities involve minor discrepancies from "total actual expenditures." This results from rounding and proportions used in the step-down process.

|   |              |      |
|---|--------------|------|
| Outpatient Department   | \$2,457,689  | 24%  |
| Dental Department   | \$ 490,237   | 5%   |
| Radiology Department  | \$ 550,773   | 5%   |
| Laboratories  | \$ 907,164   | 9%   |
| TOTAL   | \$10,328,159 | 100% |
| Source: MOH Accounting Unit, Government Pharmacy, CWM records, own calculations |              |      |

These figures can be combined with utilization statistics (additional detail provided in Appendix C) to obtain unit costs, as follows:

| Table 7. Unit Costs of Services, CWM Hospital, 1990                              |             |             |           |
|--|-------------|-------------|-----------|
| Service  | Total Costs | Utilization | Cost/Unit |
| Inpatient  | \$5,922,296 | 128,644     | \$52/day  |
| Outpatient   | \$2,457,689 | 233,007     | \$7/visit |
| Dental   | \$ 490,237  | NA          | NA        |
| Radiology  | \$ 550,773  | 56,005      | \$10/exam |
| Laboratories   | \$ 907,164  | 353,872 (a) | \$3/test  |
| (a) Figure for 1988, as more recent statistics are not available.                |             |             |           |
| Source: MOH Accounting Unit, MOH Statistics Unit, CWM records, own calculations. |             |             |           |

Thus, the cost of an inpatient day at CWM Hospital in 1990 was \$52, compared with general fees of 50 cents. The \$52 figure, because it is an average for all beds, also includes the paying beds for which patients can be charged from \$4-\$10. However, the vast majority of inpatients (94 percent in 1990) are in the general wards. It should be noted that the cost per patient day is highly dependent on the occupancy rate, since the denominator is the number of patient days. Because most of the costs are fixed (personnel) and because there would be a lag time between significant increases in patient days and increased in budget allocations, an increase in the occupancy rate would serve to bring down the average daily cost. In 1990, the occupancy rate for CWM was 85 percent; for paying beds, it was 47 percent, and for public beds, it was 91 percent.



The cost of an outpatient visit was \$7, whereas no fees are charged for general visits. Patients referred by private practitioners are charged from \$2 to \$8.

The average cost of an x-ray exam was \$10. Fees ranging from \$5 to \$40 are charged for x-rays for paying inpatients, and outpatients referred by private practitioners. In 1990, the x-ray department earned revenues totalling \$55,000, for an average of \$1 per exam.

The average cost of a laboratory test was \$3, whereas fees range from \$1 to \$25. In 1990, the laboratory earned revenues totalling \$48,000 (the amount for an 11-month period, as records for the month of January were not available), for an average of \$0.15 per test.

The following estimate of the average cost of an inpatient stay was based on a review of 30 inpatient medical records:

| Table 8. Average Cost of An Inpatient Stay, CWM Hospital, 1990                               |           |            |
|--|-----------|------------|
| Average # of Units   | Cost/Unit | Total Cost |
| ALOS = 7   | \$51.93   | \$363.51   |
| X-rays = 1.4   | \$ 9.83   | \$ 13.76   |
| Lab tests = 3.8  | \$ 2.56   | \$ 9.73    |
| TOTAL  |           | \$387.00   |
| ALOS: Average length of stay<br>Source: CWM Hospital, Government Pharmacy, own calculations. |           |            |

Thus, the average cost per inpatient stay in 1990 was \$387, compared with an average fee per inpatient stay of \$4, which represents a cost recovery rate of one percent.

### 3.2.2. Lautoka Hospital

Lautoka Hospital is the divisional hospital for Fiji's Western Division. It has 348 beds, and provides a full range of secondary and tertiary care services. Lautoka has a staff of almost 600, including 62 physicians and 243 nurses. Several established posts remain unfilled due to personnel shortages,

and many current positions are filled by expatriate staff, primarily U.N. volunteers. In 1990, Lautoka had over 14,000 admissions, and over 230,000 outpatient visits.

Total operating expenditures for Lautoka Hospital in 1990 were \$7.3 million (details are provided in Appendix C). Of that amount, \$5.2 million were personnel costs, representing 71 percent of the total. Drug purchases totalled \$1.0 million, accounting for 14 percent of the overall amount.

The results of the step-down allocation of costs are shown in Table 9.

| Table 9. Allocation of Costs By Service, Lautoka Hospital, 1990                     |             |            |
|---|-------------|------------|
| Service   | Costs       | % of total |
| Inpatient Department  | \$5,130,112 | 71%        |
| Outpatient Department   | \$1,147,596 | 16%        |
| Dental Department   | \$ 322,618  | 4%         |
| Radiology Department  | \$ 307,040  | 4%         |
| Laboratories  | \$ 358,927  | 5%         |
| TOTAL   | \$7,266,293 | 100%       |
| Source: MOH Accounting Unit, Government Pharmacy, Lautoka records, own calculations |             |            |

These figures can be combined with utilization statistics (further detail in Appendix C) to obtain unit costs, as follows:

| Table 10. Unit Costs of Services, Lautoka Hospital, 1990 |             |             |            |
|--|-------------|-------------|------------|
| Service  | Total Costs | Utilization | Cost/Unit  |
| Inpatient  | \$5,130,112 | 97,287      | \$53/day   |
| Outpatient   | \$1,147,596 | 231,740     | \$5/visit  |
| Dental   | \$322,618   | 30,546      | \$11/visit |

|  |           |         |          |
|--|-----------|---------|----------|
| Radiology  | \$307,040 | 40,328  | \$8/exam |
| Laboratories   | \$358,927 | 261,923 | \$1/test |
| Source: MOH Accounting Unit, MOH Statistics Unit, Lautoka records, own calculations. |           |         |          |

Thus, the cost of an inpatient day at Lautoka Hospital in 1990 was \$53, compared with general fees of 50 cents. The same situation as at CWM holds true here as well, where paying patients can be charged from \$4-\$10. However, as at CWM, 93 percent of the patients were in the general wards. In 1990, the occupancy rate for Lautoka Hospital was 77 percent; for paying beds, it was 53 percent, and for public beds, it was 79 percent. The occupancy rate for paying beds has been increasing over the past several years, from a low of 49 percent in 1989. The Medical Superintendent indicated that with the availability of private health insurance, more and more patients are electing those services.

The cost of an outpatient visit was \$5, almost half that at CWM. While the numbers of outpatient visits at the two facilities are virtually equal, the difference is accounted for by significantly higher personnel costs at CWM. The average cost of an x-ray exam was \$8. In 1990, the x-ray department earned revenues totalling \$55,348, for an average of \$1 per exam.

The average cost of a laboratory test was \$1. In 1990, the laboratory earned revenues totalling \$15,584 for an average of \$0.6 per test.

The following estimate (Table 11) of the average cost of an inpatient stay was based on a review of 30 inpatient medical records:

| Average # of Units   | Cost/Unit | Total Cost |
|--|-----------|------------|
| ALOS = 7   | \$52.73   | \$369.11   |
| X-rays = 1.4   | \$ 7.61   | \$ 10.65   |
| Lab tests = 3.2  | \$ 1.37   | \$ 4.38    |
| TOTAL  |           | \$384.14   |
| Source: Lautoka Hospital, Government Pharmacy, own calculations. |           |            |

Thus, the average cost per inpatient stay in 1990 was \$384, compared with an average fee per inpatient stay of \$6, which represents a cost recovery rate of two percent.

### 3.2.3. Nadi Hospital

Nadi Hospital is a subdivisional hospital in Fiji's Western Division. With 51 beds, it provides general inpatient and outpatient services as well as simple x-ray and laboratory services. Nadi Hospital has a staff of 70, including seven physicians and 34 nurses. These figures do not include staff overseen by the subdivisional medical officer, including public health, health inspection, and quarantine services personnel. In 1990, Nadi had 3,241 admissions, and almost 64,000 outpatient visits.

Total operating expenditures for Nadi Hospital in 1990 were almost \$702,000 (details are provided in Appendix C). Of that amount, \$513,782 were personnel costs, representing 73 percent of the total. Drug purchases totalled \$107,166, accounting for 15 percent of the overall amount.

The results of the step-down allocation of costs are shown in Table 12.

| Table 12. Allocation of Costs By Service, Nadi Hospital, 1990                             |           |            |
|---|-----------|------------|
| Service   | Costs     | % of total |
| Inpatient Department  | \$508,665 | 72%        |
| Outpatient Department   | \$125,463 | 18%        |
| Dental Department   | \$42,762  | 6%         |
| Radiology Department  | \$17,106  | 2%         |
| Laboratories  | \$8,113   | 1%         |
| TOTAL   | \$702,108 | 100%       |
| Note: Figures do not sum to totals due to rounding.                                       |           |            |
| Source: MOH Accounting Unit, Government Pharmacy, Nadi Hospital records, own calculations |           |            |

These figures can be combined with utilization statistics (further detail in Appendix C) to obtain unit costs, as follows:

| Table 13. Unit Costs of Services, Nadi Hospital, 1990                                      |             |             |           |
|--|-------------|-------------|-----------|
| Service  | Total Costs | Utilization | Cost/Unit |
| Inpatient  | \$508,665   | 8,882       | \$57/day  |
| Outpatient   | \$125,463   | 63,902      | \$2/visit |
| Dental   | \$42,762    | 10,770      | \$4/visit |
| Radiology  | \$17,106    | 1,755       | \$10/exam |
| Laboratories   | 8,113       | 3,590       | \$2/test  |
| Source: MOH Accounting Unit, MOH Statistics Unit, Nadi Hospital records, own calculations. |             |             |           |

Thus, the cost of an inpatient day at Nadi Hospital in 1990 was \$57, compared with general fees of 50 cents. Unlike the divisional hospitals, there are no paying wards at Nadi. It may seem odd that a subdivisional hospital would have a higher cost per patient day than CWM or Lautoka. However, despite significantly lower overall operating costs for this facility, it also had significantly lower utilization rates. In 1990, the occupancy rate for Nadi Hospital was 48 percent. This accounts for the relatively high cost per patient day.

The cost of an outpatient visit was \$2, substantially lower than both CWM and Lautoka. This is reasonable given the facility's mission to provide primary and secondary care.

The average cost of an x-ray exam was \$10, the same as CWM. This is probably due to relatively low utilization. In 1990, the x-ray department earned revenues totalling \$920, for an average of \$1 per exam.

The average cost of a laboratory test was \$2. In 1990, the laboratory earned revenues totalling \$27, representing a negligible amount per test.

The following estimate of the average cost of an inpatient stay was Based on a review of 30 inpatient medical records:

| Table 14. Average Cost of An Inpatient Stay, Nadi Hospital, 1990 |           |            |
|--|-----------|------------|
| Average # of Units   | Cost/Unit | Total Cost |
| ALOS = 4   | \$57.27   | \$229.08   |
| X-rays = 0.5   | \$9.75    | \$4.88     |
| Lab tests = 0.9  | \$2.26    | \$2.03     |
| TOTAL  |           | \$235.99   |
| Source: Nadi Hospital, Government Pharmacy, own calculations.    |           |            |

Thus, the average cost per inpatient stay in 1990 was \$236, compared with an average fee per inpatient stay of \$1, which represents a cost recovery rate of 0.4 percent.

#### 3.2.4. Sigatoka Hospital

Sigatoka Hospital is a subdivisional hospital in Fiji's Western Division. With 56 beds, it provides general inpatient and outpatient services as well as simple x-ray and laboratory services. Sigatoka has a staff of 57, including four physicians and 32 nurses. In 1990, Sigatoka had 3,155 admissions, and almost 30,000 outpatient visits.

Total operating expenditures for Sigatoka Hospital in 1990 were approximately \$840,000 (details are provided in Appendix C). Of that amount, almost \$676,000 were personnel costs, representing 81 percent of the total. Drug purchases totalled \$86,667, accounting for 10 percent of the overall amount.

The results of the step-down allocation of costs are shown in Table 15.

| Table 15. Allocation of Costs By Service, Sigatoka Hospital, 1990                    |           |            |
|--|-----------|------------|
| Service  | Costs     | % of total |
| Inpatient Department   | \$619,321 | 72%        |
| Outpatient Department  | \$157,636 | 18%        |
| Dental Department  | \$32,200  | 6%         |
| Radiology Department   | \$18,181  | 2%         |
| Laboratories   | \$12,649  | 1%         |
| TOTAL  | \$839,988 | 100%       |
| Note: Figures may not sum to totals due to rounding.                                 |           |            |
| Source: MOH Accounting Unit, Government Pharmacy, Sigatoka records, own calculations |           |            |

These figures can be combined with utilization statistics (further detail in Appendix C) to obtain unit costs, as follows:

| Table 16. Unit Costs of Services, Sigatoka Hospital, 1990                                      |             |             |           |
|--|-------------|-------------|-----------|
| Service  | Total Costs | Utilization | Cost/Unit |
| Inpatient  | \$619,321   | 11,349      | \$55/day  |
| Outpatient   | \$157,636   | 26,947      | \$6/visit |
| Dental   | \$32,200    | 13,730      | \$2/visit |
| Radiology  | \$18,181    | 1,406       | \$13/exam |
| Laboratories   | \$12,649    | 3,823       | \$3/test  |
| Source: MOH Accounting Unit, MOH Statistics Unit, Sigatoka Hospital records, own calculations. |             |             |           |

Thus, the cost of an inpatient day at Sigatoka Hospital in 1990 was \$55, compared with general fees of 50 cents. In 1990, the occupancy rate for Sigatoka Hospital was 56 percent, slightly higher than at Nadi Hospital.

The cost of an outpatient visit was \$6, higher than all other hospitals with the exception of CWM. This seems to be due to a relatively high proportion of time spent by medical staff (particularly physicians) in outpatient services, compared with other facilities.

The average cost of an x-ray exam was \$13, higher than at all other hospitals examined. As in the case of Nadi Hospital, this high unit cost is probably due to relatively low utilization. In 1990, x-ray exams performed totalled just over 1,400. The average cost of a laboratory test was \$3, within the range of unit costs at the other hospitals.

The following estimate of the average cost of an inpatient stay was based on a review of 30 inpatient medical records:

| Table 17. Average Cost of An Inpatient Stay, Sigatoka Hospital, 1990 |           |            |
|--|-----------|------------|
| Average # of Units   | Cost/Unit | Total Cost |
| ALOS = 5   | \$54.57   | \$272.85   |
| X-rays = 0.2   | \$12.93   | \$ 2.59    |
| Lab tests = 0.6  | \$3.31    | \$1.99     |
| TOTAL  |           | \$277.43   |
| Source: Nadi Hospital, Government Pharmacy, own calculations.        |           |            |

Thus, the average cost per inpatient stay in 1990 was \$277, compared with an average fee per inpatient stay of \$2, which represents a cost recovery rate of one percent.

### 3.2.5. Valelevu Health Center

Valelevu is a large, relatively new urban health center on the outskirts of Suva. It provides general outpatient services, as well as preventive and public health services. Valelevu Hospital has a staff of 30, including five



doctors and sixteen nurses. In 1990, Valelevu had approximately 100,000 outpatient visits.

Total operating expenditures for the health center in 1990 were \$165,471 (details are provided in Appendix C). Of that amount, \$107,614 were personnel costs, representing 65 percent of the total. Drug purchases totalled \$49,478, accounting for 30 percent of the overall amount.

The results of the step-down allocation of costs are shown in Table 18.

| Table 18. Allocation of Costs By Service, Valelevu Health Center, 1990                |           |            |
|---|-----------|------------|
| Service   | Costs     | % of total |
| Outpatient Department   | \$125,508 | 76%        |
| Dental Department   | \$11,223  | 7%         |
| Public Health Services  | \$28,740  | 17%        |
| TOTAL   | \$165,471 | 100%       |
| Source: MOH Accounting Unit, Government Pharmacy, Valelevu records, own calculations. |           |            |

These figures can be combined with utilization statistics (further detail in Appendix C) to obtain unit costs, as follows:

| Table 19. Unit Costs of Services, Valelevu Health Center, 1990                        |             |             |           |
|---|-------------|-------------|-----------|
| Service   | Total Costs | Utilization | Cost/Unit |
| Outpatient  | \$125,508   | 100,000     | \$1/visit |
| Dental  | \$11,223    | 10,842      | \$1/visit |
| Source: MOH Accounting Unit, MOH Statistics Unit, Valelevu records, own calculations. |             |             |           |

The costs of outpatient and dental visits at the health center are significantly lower than at the hospitals, as would be expected.

In 1990, Valelevu Health Center earned revenues totalling almost \$13,000. This figure represents a cost recovery rate of eight percent for the health center as a whole. However, these revenues were earned exclusively by the dental department. On that basis, they represent a cost recovery rate of 115 percent for that department.

#### 4.0. POTENTIAL MECHANISMS FOR INCREASING COST RECOVERY

As is evident from the results described in Section 5, there is currently a very low level of cost recovery within the health sector in Fiji. Of course, that is not surprising, given the existing fee structure. The purpose of conducting the above analyses was to provide the MOH with solid information about the cost of providing services, so that decisions could be made regarding health financing policy reform. Throughout this study, personnel within the MOH expressed strong support for the idea of increasing current fees. This support extends from the highest level of the Ministry to field staff in health centers. All personnel are aware that their ability to carry out their duties effectively is hampered by a shortage of resources, and believe that improving cost recovery may help to alleviate those shortages.

With that in mind, the following sections discuss some of the options that can be considered for an improved cost recovery system. Undoubtedly, the MOH is already aware of many of the options available and the issues it faces. These various alternatives will need to be considered both within the MOH itself and by other government bodies that will be affected by policy reform, particularly the MOF. This document makes no attempt to recommend a particular system for Fiji; that decision is left to government policymakers. It does, however, attempt to provide them with sufficient information to make an informed decision that will lead, hopefully, to successful cost recovery efforts.

##### 4.1. WHERE TO INSTITUTE FEES

The health sector has a number of options regarding where to charge fees. It can charge fees at every government health facility, at selected facilities, or at certain levels of facilities. If only certain levels are chosen, the most obvious option would be to charge fees at hospitals. As seen in the above analyses, hospitals are high-cost operations, and instituting charges here rather than at any other level of the health sector automatically pushes the system in the direction of cost-based pricing.

In Fiji, there seems to be a consensus that fees should be charged at the hospital level. The real question may be whether fees should be limited to the hospital level, or extended to health centers and nursing stations. As a general observation, the fee structure before 1987 included charges at all levels of facilities. Based on the author's visits to two health centers, there would appear to be the potential for successful cost recovery efforts there as well.

Lower-level facilities will likely require more simplified systems for cost recovery, but there is no inherent reason why they should not participate as well.

One area in which fees should not be charged is for those services with externalities, that is, where the benefits accrue not only to the individual receiving a service but to others as well. For these types of services (commonly known as public goods in economic terms), it is desirable to encourage greater consumption, and charging fees would deter that. The most obvious case of this is preventive care and public health services, such as immunizations and vector control.

#### **4.2. HOW TO STRUCTURE A FEE SYSTEM**

How fees are structured will have an important impact on the potential revenue from cost recovery, as well as on the overall performance of such a system. The way in which fees are charged can also affect the efficiency and utilization of health care services, due to built-in incentives.

Some of the ways fees can be structured include the following:

- Inpatient fees on a per-day basis
- Inpatient fees on a per-admission basis
- Outpatient fees on a per-visit basis
- Outpatient fees on a per-illness episode basis
- Outpatient fees differentiated as first and follow-up visits
- Registration or entrance fees
- Fees related to age of patient (e.g., no charges or lesser charges for children and/or the elderly)
- Fees related to income of the patient
- All-inclusive fees that cover diagnostic services and drugs
- Detailed fees for diagnostic services, drugs, and medical procedures
- Fees based on amenity services available (e.g., higher fees for private or semi-private rooms)
- "Bypass" fees, in which higher fees are charged to patients who refer themselves to higher-level facilities

The existing fee system has already made some of these choices, and in some of those cases, restrictive choices were not made. For example, inpatient fees are all-inclusive for those in the general wards, but there are detailed fees for

all diagnostic services, drugs, and medical procedures for those in the paying wards. In considering a new fee structure, it may be worthwhile to reconsider some of these choices and to rationalize, and perhaps simplify, the system. During discussions with divisional hospital staff, it was noted that the current system of charges for paying versus public patients is widely bifurcated, despite the fact that the services they receive differ only marginally. Many staff expressed the opinion that charging such a low fee (50 cents) for the general wards, which entitled patients to any number of diagnostic services, while charging higher fees to paying patients, and then charging them for individual services as well, was not really equitable.

In choosing how to structure a fee system, one consideration is ease of administration. Implementing fees where they do not currently exist, and increasing existing fees, are both likely to entail an increase in the administrative requirements at health facilities, as well as at the MOH. Thus, keeping the system as simple as possible, particularly at the beginning, is desirable. Minimizing the number of different fees, and the recordkeeping required, may be critical to a cost recovery program's success, especially in the early stages.

Thought also should be given to the incentives inherent in a fee structure. One example of this might be the relative impact of all-inclusive fees versus detailed fees on the utilization of diagnostic services. If patients are charged separately for diagnostic services such as x-rays, they are less likely to make frivolous requests for those. At the other end of the spectrum, facilities charging flat rates per inpatient admission may have an incentive to discharge patients earlier than they would otherwise if they try to minimize costs. Alternatively, facilities charging patients on a per-day basis may have an incentive to keep patients in longer than necessary. Whatever fee structure is selected, there will be some built-in incentives to affect consumer and provider behavior. As long as the MOH is aware of those incentives, it can also establish procedures as safeguards to ensure that quality health care is provided.

One important incentive is provided by the use of "bypass" charges, where patients are essentially penalized for using a level of service not warranted by their medical condition. The purpose of such a fee is to encourage patients to use an appropriate level of the health system, starting at the bottom and working up towards referral hospitals. Such fees can take the form of penalty charges, e.g., for patients who show up at hospitals without referrals from health centers. This may require a fair amount of administrative monitoring. A simpler

system might be to charge higher fees at higher levels of facilities; thus, for example, outpatient visits at health centers might carry a charge of \$1, while outpatient visits at hospitals might cost \$5. Such a system of bypass fees or graduated fees might help to relieve some of the pressure on hospitals such as CWM and Lautoka, which have very heavy patient loads. These loads can be reduced if more patients are appropriately treated at primary or secondary-level facilities.

### 4.3. HOW MUCH TO CHARGE

Setting prices for services is often thought to require sophisticated analyses of costs, elasticities of demand, and other economic information. If those data are available, policymakers can certainly benefit from them. However, lack of detailed economic data should not deter policymakers from the task, as they probably have a lot more information than they think.

There is no simple answer to the question of how much to charge. Prices should be established with a broad range of considerations in mind. Brief descriptions of those factors follow.

- *What are the objectives of the cost recovery system, particularly in relation to cost?*

Is the system intended to generate substantial amounts of revenue, e.g., to cover operating costs other than personnel? If so, prices will have to be set on the basis of operating expenditures. On the other hand, if the objective is to generate some supplemental revenue, prices can be lower. If the MOH establishes a percentage goal for cost recovery (e.g., 30 percent of operating expenditures), it will need to establish prices with a careful eye to what those expenditures are.

- *What is currently being charged in the private sector?*

Prices in the private sector can be used as guidelines for establishing prices in government facilities. Most ministries of health instituting cost recovery programs will seek to establish fees below private sector prices, recognizing that in doing so they may be able to attract patients currently outside of the government system. In addition, most government facilities

acknowledge that they probably cannot compete head-to-head with the private sector, at least not initially.

In Fiji, there are two sources of private sector prices to be considered. Ba Hospital, a "private" facility in name only because of substantial subsidies provided by the government health budget, charges fees for all services. For example, this hospital charges \$2.50 per inpatient day, \$1.20 for initial outpatient visits, and \$0.70 for subsequent outpatient visits. The other source of prices are private practitioners, of which there are approximately 90 throughout the country. A list of recommended minimum fees established by the Private Medical Practitioners Associations in June 1990 shows consultation charges ranging from \$8 to \$25, with premiums charged for visits to specialists.

- *What can patients afford to pay, and what are they willing to pay?*

This information is usually gathered through quantitative surveys of households and patients. The most recent household income and expenditure study done in Fiji was completed in 1979. The data from that survey are unlikely to be useful at this stage given the substantial changes that have taken place in the country in the last 12 years. However, the Bureau of Statistics is currently compiling data from an update that was carried out in 1991, and results should be available sometime this year. Those data may provide some guidance to policymakers.

Without those data, however, it may still be possible to estimate what patients might be able and willing to pay. One way of doing that is by examining what else people spend their money on, for example, cigarettes or liquor. Another way is by looking at the minimum daily wage, and setting prices in relation to that.

In the case of health care services, some may feel that it is difficult to establish prices because people do not pay anything now. This is clearly not the case in Fiji. If one looks at drugs, for example, many if not most patients are paying for health care services. Although drugs are distributed free to patients, that is constrained by the availability of drugs. The fact that there are constant shortages is confirmed by the prevalence of community pharmacies, often within government health facilities, which provide drugs to patients at costs below those of private pharmacies. If patients are willing and able to purchase drugs from community pharmacies, and private pharmacies for that matter, they would probably be willing and able to purchase them from government

pharmacies, especially since prices would probably be lower than at private and community pharmacies.

A recent study of public hospitals in developing countries indicates that fees are generally small in proportion to per capita GNP in most countries. Although data are limited, the median of fees is less than one percent of per capita GNP for an inpatient day, and 0.2 percent of per capita GNP per outpatient visit.<sup>7</sup> If such guidelines were applied to Fiji, based on 1990 per capita income of \$2,500, they would translate into inpatient fees of \$25 and outpatient fees of \$5.

One other guideline for setting fees is examining how current fees originated. The current fee structure was established many years ago, and prices have not been updated to keep pace with inflation. Revising fees to bear some relation to current prices and inputs could be one way of establishing a new fee structure, particularly if there already exists a detailed fee list (e.g., x-ray and surgery services at hospitals already are subject to detailed price lists, although they apply to few patients; these may simply need to be updated rather than replaced).

#### **4.4. HOW TO IMPLEMENT A COST RECOVERY SYSTEM**

Cost recovery implementation will depend in part on some of the choices addressed in Section 6.3, such as where fees will be charged. However, the main options here are implementing a system on a nationwide scale, versus starting with pilot testing at selected facilities or in selected areas. The latter provides the obvious advantage of beginning on a smaller scale, and allowing room to learn from and correct errors. A series of pilot tests would allow the MOH to try out a variety of cost recovery options (e.g., in terms of how prices are set), and then examine the relative success of each.

Another issue regarding the implementation of cost recovery is who becomes responsible at the facility level for collecting fees and administering the cost recovery system. Administrative staffs at health facilities in Fiji are very lean, and it would be difficult for most to take on additional activities. Moreover, one comment heard during facility visits was the problem of having

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<sup>7</sup> Public Hospitals in Developing Countries: Resource Use, Cost, Financing, Howard Barnum and Joseph Kutzin, The World Bank, November 1990.



medical staff responsible for handling fee collection. Most were either too busy, or unions complained that collecting fees should not be part of medical staff responsibilities, particularly for reasons of safety. From an efficiency standpoint, it does not make sense for highly trained medical staff to carry out administrative duties, including collecting fees. Serious thought will have to be given to how the administrative effort required will be provided.

#### **4.5. ALTERNATIVES TO COST RECOVERY AT THE FACILITY LEVEL**

The options outlined in the previous sections are all approaches to establishing user charges at facilities. One alternative, which would also achieve the objective of generating resources for the health sector, is through the use of taxes. This option was raised in several discussions with government officials and bears mentioning here, although it is outside the scope of a discussion of fee-for-service payments at health facilities.

Additional resources could be raised for the health sector, either by imposing a head tax or supplementing current contributions to the Fiji National Provident Fund (FNPF), and earmarking those funds for the health sector. Two comments will be made here about such options. First, one benefit to user charges is that their impact is felt by people who utilize the required services. That is, one only pays if one goes to the hospital. Such a system provides incentives to the population to remain healthy. This benefit is lost by using tax revenues to finance health care services. Everyone will pay, regardless of whether or not they will use the services. This may be unfair to people who keep themselves healthy, and thus end up subsidizing others who do not. At the same time, there is no discouragement to frivolous use of health services. Since patients do not have to pay at the door of the health facility, they may be more likely to show up for minor problems, and create unnecessary workloads for facility staff.

Second, and perhaps more important in the Fijian context, is the fact that discussions with MOF officials showed them to be unfavorably disposed to earmarking taxes for the health sector. The MOH, justifiably, noted that earmarking taxes for one sector would soon result in demands for earmarked taxes for every other sector as well. They noted that revenues from the soon-to-be implemented Value-Added Tax (VAT) will not be set aside for specific expenditures, but will be placed into the general funds, to be allocated across sectors as are all other revenues.

## **5.0. CRITICAL CONSIDERATIONS FOR INCREASING COST RECOVERY**

The previous sections described some of the options from which the MOH can select a cost recovery system. This section of the report discusses a number of important issues to be considered, regardless of what form a cost recovery system takes. Because the MOH is familiar with many of these issues and their importance, the intent of this section is to underscore their significance, based on practical experience with cost recovery in other countries.

### **5.1. FEE RETENTION POLICY**

Probably the most critical issue affecting the success or failure of a cost recovery system is its fee retention policy. That is, both theory and empirical evidence demonstrate that cost recovery systems will only be successful if ministries of health, and preferably individual facilities, are allowed to retain some if not all of the revenues they earn.

If fees must be turned over to the general government treasury, there is no incentive for facility staffs to collect fees. Alternatively, if they are able to retain some of those revenues, there is an obvious incentive for them to do whatever possible to see that the cost recovery system works. Retaining some of those revenues usually means that some priority needs, not currently met through the government budget, can be fulfilled. In most other cases where fees can be retained at the facilities, they are used to purchase drugs, other needed supplies, and equipment. In a few cases, revenues are used for incentive payments or bonuses to staff.

The current expenditure practice in the Fijian health sector is that budgets and line-item limits are set centrally, and facility administrators have little or no autonomy in resource allocation decisions. Allowing them to retain some or all of the revenues collected, and to spend them within guidelines established by the MOH, would provide incentives for individual facilities to become more efficient in their distribution and use of resources.

### **5.2. GOVERNMENT SUBSIDY POLICY**

Closely related to the question of retaining revenues at facilities, or at a minimum within the health sector, is the question of what happens to government subsidies when cost recovery is implemented. Even if facilities are allowed to retain their earned revenues, if government subsidies are cut by the same amount

as the earned revenues, the facilities are no better off than they were before, and would have expended significant administrative effort for naught.

Clearly this matter, as well as the issue of fee retention, will have to be discussed and negotiated with the MOF. A number of different formulas can be used to determine the level of government subsidy when cost recovery is implemented. It is assumed that some level of government subsidy will continue, and that any cost recovery program will not be expected to generate revenues to cover 100 percent of MOH operating expenditures.

At one end of the spectrum, the health sector would maintain its current or baseline level of government subsidy, and would be able to retain all revenues earned. Those revenues could then be allocated to currently underfunded activities, most often assumed to be preventive and promotive health services. At the other end of the spectrum, of course, the health sector would either retain none of its revenues, or its subsidy would be reduced by 100 percent of the revenues earned. There is room for negotiation anywhere along this spectrum.

One option might be to establish a threshold level of revenues, where amounts collected above the threshold could be retained. Such a threshold could apply either to the entire sector or to individual facilities. Thus, for example, if the limit was set at \$1 million for the health sector as a whole, earnings of \$1.5 million would mean an extra \$500,000 for the sector. Earnings of \$900,000 could mean no extra revenues, or perhaps even a reduction in government subsidy of \$100,000. This, of course, provides both a carrot and a stick to the sector to meet its goal; extreme care would have to be taken in setting realistic goals so as not to have disastrous effects.

Another option might be to have a percentage reduction in subsidy or retention of revenues. For example, the MOF could determine that 75% of any revenues earned must be turned over to the Treasury, but that the remainder could be used by facilities. Alternatively, it could reduce the MOH's subsidy by 75% of the revenues earned, and allow retention of all revenues. More complicated scenarios would involve sliding scale percentages depending on the amount of revenue earned. For example, on the first \$100,000 earned by the health sector, the MOF would impose a "tax" of 50 percent, and cut the MOH subsidy by \$50,000. On the next \$100,000 earned, the tax rate would be 30 percent, so that effective earnings would be \$70,000. Such a system would provide strong incentives within the health sector to enforce the cost recovery system and provide quality services to generate additional revenue.

### **5.3. PROTECTING ACCESS OF THE POOR**

Efforts to increase cost recovery in the Fijian health system will require simultaneous measures to ensure continued access of the poor to health care services. Means testing is currently done in two ways. Officially, those who cannot afford public services (including health) can apply for certificates of exemption from District Officers. These certificates are valid for one year, and when presented at health facilities, release the patient from having to pay any fees. Requests to meet with the District Officer in Suva were unsuccessful, so information on this administrative system is limited. However, anecdotal evidence suggests that there is some abuse of the system, and some who are clearly able to pay benefit from certificates of exemption. At the same time, many people who would qualify for exemption do not have such certificates.

At health care facilities, people in this latter category can appeal to the medical officer in charge for exemption. Thus, a very decentralized system of means testing is also in place, whereby on the spot decisions regarding ability to pay are made. This may be reliable and appropriate at lower levels of the health system, such as nursing stations, where facility staff are familiar with the population. At hospitals, however, particularly in urban areas, this proves much more difficult.

Given the low levels or non-existence of fees at present, reliance on current means testing systems may suffice. For example, in 1991, Lautoka Hospital recorded 15 inpatients with certificates of exemption, out of total admissions of approximately 15,000. However, if fees are to be established for outpatient services, and/or increased for inpatient services, there are likely to be significant increases in the numbers of patients requiring exemptions.

### **5.4. IMPROVING THE QUALITY OF CARE**

It will be necessary to improve the quality of care being provided at government health facilities as fees are introduced or increased. Most patients will not be happy about paying for services that were previously free (whether they would still do so is another matter). However, if the services are qualitatively different, and in particular, if patients felt that they were getting something (better care) for their money, it is more likely that a cost recovery program would succeed.

One of the objectives of a cost recovery program is to generate funds that can be used within the health sector, presumably to improve services. Very often, as in Fiji, one hope is to be able to use those revenues to purchase materials, particularly drugs, which are in short supply. By being able to provide needed drugs, the MOH may be providing what patients consider to be "better services."

It is not always clear what is defined as better quality care. In the case of cost recovery, the most critical element is probably knowing what patients define as quality care. As such, some analysis of this will have to be done, to determine what priority areas are, and what improvements would induce patients to attend government health facilities when fees are imposed.

## **5.5. THE AVAILABILITY OF HEALTH INSURANCE**

The topic of health insurance is being addressed in a separate report to USAID and the MOH, but it bears mentioning here in relation to the prospects for success of a cost recovery program. If fees are to be introduced at a level approaching the cost of providing services, it is likely that health services will be out of reach for large segments of the population, if they are expected to finance health care through out-of-pocket payments. However, with the availability of a well-functioning health insurance system, increased fees above current levels could still be afforded by patients. Without a system of health insurance, fees are unlikely to be raised much above what they currently are, given the principle of basing price at least in part on ability to pay.

Of course, developing a health insurance system goes hand-in-hand with developing a viable cost recovery system and fee structure. Given the current level of fees, existing health insurance companies in Fiji have limited concerns about paying for claims for local hospitalizations. However, increased fees would provide a market for those companies, and if the quality of care were increased, might keep patients in Fiji rather than seeking care in New Zealand or Australia, and would thus actually lower the costs of the insurance companies. McFarland's report on the potential for health insurance in Fiji will provide more details. It should be noted, however, that an improved system of user charges and a system of health insurance should be considered in tandem. Each will add to the prospects of success for the other.

## 5.6. ESTABLISHMENT OF PLANNING/ANALYTICAL CAPACITY TO OVERSEE COST RECOVERY EFFORTS

Lastly, consideration should be given to establishing a planning or analysis unit within the MOH to oversee the implementation of what could be very substantial efforts in health financing in the near future. Undertaking efforts to improve cost recovery will require a great deal of planning and analysis, as well as a tremendous amount of management and administration. There is currently no specific unit within the MOH structure to handle the planning and analytical tasks; current managers and administrators are already overburdened, and should not be expected to take on implementation of cost recovery efforts as well.

One suggestion has been made that instead of establishing such capacity within the MOH, it might suffice to ensure that such planning/analysis/oversight is done, perhaps by contracting it out to the private sector. While that might be possible, it would seem that such skills need to be institutionalized. Relying on the private sector may ensure that the job is done now; however, the MOH may find itself reliant on such outside assistance over the long term.

## 6.0. NEXT STEPS

The next steps to be taken to improve the cost recovery system in Fiji include reaching some consensus as to what shape policy reforms should take, and how they can be implemented. USAID and the HFS Project are prepared to assist the MOH in two specific ways.

First, as outlined above, information is needed on patients' perceptions of quality of care, to be able to set priorities to improve health care services and thus attract patients once fees are instituted or increased. Planning is now under way for an applied research study to be conducted on this topic. Tentative plans include a study based on focus groups and a qualitative data collection method. The possibility of carrying out a small-scale quantitative survey of patients and households is also being considered. Information gathered from this research will complement the cost information in this report, and provide the MOH with some guidance on cost recovery efforts.

Second, a series of policy workshops is being planned, with technical assistance to be provided by USAID and HFS, as needed. The first workshop is intended for MOH officials to discuss the various options for cost recovery (and health financing, in general). Policymakers will consider many of the issues raised in this report, and will have an opportunity to hear of successful and less than successful attempts to institute cost recovery in other countries. This workshop will serve as a forum in which MOH policymakers can reach a consensus on what they want to do about cost recovery efforts, and to establish a strategy or workplan for implementing those efforts.

Another workshop would be planned for a later date, and would involve a broader audience, including officials from other ministries (in particular, Finance), as well as from other public and private sector bodies. These might include the Public Service Commission, the District Officer (or others responsible for means testing systems), private practitioners, and those involved in the health insurance market. This workshop would provide an opportunity for the MOH to present its strategy, receive comments from other bodies, and revise its strategy as necessary so that plans can be established for next steps.

## APPENDIX A: STATEMENT OF WORK

Like many developing countries, Fiji recognizes the need for reform of its financing mechanisms for the health sector. As public spending to the sector has decreased during the past years it has become increasingly evident that the mix of revenue to the sector from available sources (public, private, and third party) must be adjusted to reflect current needs. The MOH in Fiji is committed to such reforms through the initiation/revision of cost recovery mechanisms for urban hospital services, development/expansion of health insurance coverage, and increased privatization of certain services.

The MOH currently wishes to increase the percentage of costs recovered through patient fees. Finance policy must be modified to allow public sector health facilities to retain the revenues generated through fee collection in order to improve the quality (and perhaps quantity) of services delivered.

In order to assist the MOH in the reform of cost recovery mechanisms in use, USAID/Suva requests the assistance of consultants to perform an assessment of the current system, one for MOH officials that will build Ministry consensus around the proposed changes in other Ministries, especially the MOF.

In order to do this, USAID/Suva requests that the consultant(s) perform the following tasks:

- (1) estimate current costs of most frequently used in-patient and out-patient services at hospitals;
- (2) assess current fee structures for services at hospitals;
- (3) assess current revenues generated by hospitals by service;
- (4) assess current means testing and other mechanisms for protecting access to services by the poor;
- (5) assess current insurance mechanisms, their current coverage and contribution to current hospital revenues; and
- (6) assess the potential for alternate third party payment mechanisms including HMOs and the "social security/provident fund."



The consultant(s) will present the findings in a report(s) to be submitted to USAID/Suva and the GOF. In addition to the above, the report(s) shall contain:

- (1) recommendations for the revision of fee schedules and fee collection mechanisms in use at hospitals in Fiji;
- (2) recommendations for the revision of finance policy to allow hospitals to retain and manage revenues generated by fee collection;
- (3) guidelines for use by hospitals for the use of revenues to improve service delivery; and
- (4) recommendations on the type of health insurance programs to be encouraged in Fiji.

The consultant(s) will present the results of the assessments and report(s) described above to MOH officials in a workshop. Workshop participants will provide feedback on report contents and develop a MOH work plan for activities in this area. The workshop report will provide the basis for the development of a report to the Cabinet with recommendations for change in current policy and operations. A second workshop will be held, if necessary, to further refine the report and build support among other Ministries for the proposed reforms.

The consultant(s) will coordinate activities with other consultants performing feasibility studies on the privatization of certain hospital services.

It is anticipated that the activities described above will require the services of a health policy analyst/planner and a health economist/financial expert for a total of 60 person-days (30 person-days for each of two workshops) to prepare and conduct the workshops. 12 person-days are allocated for home office backstopping. Thus 158 person-days are estimated needed to complete activities funded under this PIO/T. Of this, 49 person-days needed to complete the work outlined in this PIO/T. Activities to be performed by each of the consultants will be planned over four visits (two study/assessment and two workshops) over a six to nine-month period. A tentative action plan for the visits is included below. Scheduling of each visit will be done in collaboration with the proposed consultants, USAID/Suva and appropriate MOH officials.

### Visit 1: Assessment

- **Assess** cost recovery performance, obstacles and possibilities (including rapid assessment of means testing and ability to pay mechanisms),
- **Assess** GOF budgetary trends for last five years (including real and absolute expenditures, personnel costs, resource allocation between urban and rural services, resource allocation between hospital and non-hospital services, if possible),
- **Set** up data collection methods,
- **Perform** initial analyses, and
- **Hire** local consultants to obtain data needed for full assessment.

### Visit 2: Analysis

- **Complete** data collection (if necessary),
- **Complete** analysis of cost, pricing and insurance studies, and
- **Prepare** and discuss draft report.

### Visit 3: Workshops

- **Conduct** two workshops, and
- **Define** and prepare follow-up steps as outlined by workshop participants.

## APPENDIX B: DETAILED METHODOLOGY FOR COST ANALYSIS

This appendix details the steps in conducting cost analyses for four hospitals and one health center in Fiji. The methodology is essentially that of a step-down allocation of costs, a generally accepted accounting practice. In the case of Fiji, as in many developing countries, adequate data do not exist to carry out a precise analysis. Where applicable, this appendix explains what assumptions were made or how gaps in data were filled. While this appendix describes the methods used in Fiji, they are applicable elsewhere, assuming that equivalent data sources and data are identified. It should be noted that in describing this methodology, it is hoped that subsequent analyses will be carried out in Fiji, and/or that additional data will be developed which can enhance the results presented in this technical report.

The scope of work for this study called for estimates of the current costs of the most frequently used in-patient and out-patient services at hospitals. Based on the availability of data, it was determined that the following costs would be estimated:

- Cost per in-patient day
- Cost per outpatient visit
- Cost per x-ray exam
- Cost per laboratory test
- Cost per dental visit
- Cost per stay

Because adequate data were available for Valelevu Health Center, a similar analysis was conducted there, examining the costs of outpatient visits and dental visits. Because of the relative simplicity of health center operations (i.e., it was not necessary to distinguish between in-patient and out-patient services), the focus of the following will be on hospital services.

To determine costs for a hospital as a whole, for selected departments, and per units of service, the following steps were taken:

1. Line-item expense categories were identified from the budget for the 1990 budget year. While hospital administrators in Fiji have some budgetary control of their own, and thus some idea of the expenditure levels required to run their facilities, the majority of data are maintained at the central level, that is, at MOH headquarters. The accounting unit at the MOH maintains records of expenditure levels for most facilities.

Hospitals are treated individually, but many of the smaller facilities (i.e., health centers) are not treated as individual cost centers. In those cases, it is possible to apportion expenditures among groups of health centers based on some indicator, such as proportional numbers of staff or proportional utilization rates.

In addition to expenditure data from the MOH, it was necessary to obtain information on distribution of pharmaceuticals and other specialty supplies (laboratory, dental, and x-ray materials) from the Government Pharmacy.

2. Departments were identified for purposes of cost allocation and calculation of unit costs. In some cases, detailed information was available for each of different service departments within the hospital. However, given the required analyses, hospitals were separated into inpatient, outpatient (and casualty), dental, x-ray, laboratory, pharmacy, and administrative/support departments. The latter included housekeeping, clerical, maintenance, laundry, kitchen, and other such services.
3. The line items in the budget were assigned to the hospital's services identified in step 2. Those costs that could be were assigned to specific services, whereas the others were allocated proportionally across the hospital. For example, rations (food supplies) were allocated exclusively to inpatient services, while telecommunications and fuel/oil were divided across services on the basis of the percentage of hospital personnel working in each service.
4. To calculate unit costs, total costs within a service were divided by the department's service volume.
5. To compare costs and revenues earned, a sample of inpatient and outpatient records was reviewed. These record reviews produced estimates of average length of stay, average number of x-ray and lab tests, and average cost of drugs, which were then compared with the average fees paid.

Each of these steps is explained in further detail in the following paragraphs.

1. Identification of all relevant costs.

The 1990 budget year was chosen for analysis because of the almost complete availability of information, including both expenditure figures and utilization statistics. Line-item categories, as defined by the MOH accounting unit, were

utilized for this analysis. These included: personal emoluments and allowances; wages and allowances; travel; telecommunications; freight; transfer expenses; transport of patients; fuel and oil; spare parts and maintenance; maintenance of equipment; rations; oxygen; general stores and incidentals; power, light, water, refrigeration; laundry; and miscellaneous.

Actual expenditure figures were obtained for the 1990 year from the MOH accounting unit. [It should be noted that the CWM Hospital accounting staff produced much of the same information; however, the hospital did not have access to salary information for any but the unestablished staff, and it required significantly more effort for it to gather the requisite data.] It is important to use "actual" figures rather than the budget estimates, including the revised estimates. As one would expect, the actual amounts sometimes vary substantially from the estimated or approved amounts.

In addition to the above data, it was necessary to obtain figures on distribution of drugs and special supplies to government health facilities. The Government Pharmacy maintains records of the cost of materials distributed to individual facilities; however, due to a shortage of staff, to date only records for 1989 and previous years have been tabulated. Nevertheless, these data could be combined with MOH accounting office figures for total 1990 expenditures for the Government Pharmacy (the Government Pharmacy is treated as an individual cost center, and thus expenditure information is available from the MOH). Based on 1989 data from the Pharmacy, it was possible to obtain precise estimates of the proportion of drugs going to individual facilities, compared to the total. These proportions were then used to distribute the 1990 total to individual facilities. For example, CWM Hospital accounted for \$874,343 in drugs in 1989, representing 26.4% of all drugs supplied by the Government Pharmacy. Total expenditures for the Government Pharmacy in 1990 were \$5,170,452; 26.4% of this amount (\$1,367,416) was allocated to CWM Hospital.

It should be noted that this analysis, whenever possible, estimated the economic costs of providing services at hospitals. Thus, for example, in the case of pharmaceuticals, the dollar amount assigned to CWM Hospital included not only the cost of the drugs themselves, but the additional expenditures of the Pharmacy required to distribute those drugs. The rationale behind this "full-cost allocation" was that if CWM had to purchase drugs on its own, it would incur additional personnel and administrative overhead costs. Thus, the amounts "charged" to the hospitals' drug line items include the actual amount of drugs purchased, plus an additional seven percent for the overhead costs of running the Government Pharmacy. In this way, the full cost of operating health services are accounted for.

## 2. Identification of Hospital Services/Departments

Depending on the requirements of a costing exercise, it may be necessary to identify all direct and indirect services as part of hospital operations. Thus, for example, if sufficient data are available, it would be possible to provide unit costs for each department within a hospital (e.g., surgery, pediatrics, medicine, laundry, kitchen, blood bank, etc.). A hospital seeking to improve or monitor its own operations could benefit from this type of disaggregation of data. Identifying numerous cost centers within a facility and tracking costs and utilization for those units can provide management with much useful information regarding efficiency and appropriateness of operations.

For this analysis, it was sufficient to identify inpatient and outpatient (including both general and specialty) departments, dental radiology, laboratory, and pharmacy services, and overall administration and support. In the final analysis, costs for the pharmacy and administration/support were allocated over the rest of the direct services, in order to provide a complete picture of all costs involved in providing services to patients.

## 3. Allocation of Costs to Hospital Services

For most of the categories of expenditures for the hospital, breakdowns were not available to show which departments incurred which costs. The accounting systems currently in place at government hospitals are seriously hampered by their inability to recognize the generation of costs by departments. As noted above, improved cost accounting systems would help to monitor the flow of resources and expenditures.

Lacking such detailed cost accounting systems, it was necessary to estimate the relative proportions of each category of costs for each hospital department identified above in step 2.

### A. Personnel

Expenditure levels on established and unestablished staff within a facility were available from the MOH accounting unit. In order to distribute these costs amongst hospital departments, it was necessary to have as complete as possible a breakdown of personnel by type and department. Facilities were asked to supply the numbers of doctors, nurses, paramedical staff, and unestablished staff in each department.

The primary difficulty in this area was to allocate personnel between inpatient and outpatient services. In most cases, nurses are specifically assigned to one of those areas. Most physicians, however, as well as the unestablished staff, work in both inpatient and outpatient services. In this case, hospital staff were asked to estimate approximately what proportion of time was spent in the outpatient vs. inpatient department. Thus, for a medical staff of 10, where physicians spend on average two hours per eight-hour day in the outpatient department, two and a half doctors would be assigned to the outpatient department, and seven and a half to the inpatient department. For purposes of simplicity, these can be rounded off to whole numbers.

Unless more detailed information was available, unestablished staff were "assigned" to departments in relative proportion to medical staff (doctors, nurses, paramedical).

Although there were not specific data on personnel costs by department, it was possible to arrive at reliable estimates, based on total personnel expenditures and a breakdown of personnel by department. Established and unestablished staff costs were analyzed separately. This was made possible because the MOH has separate line items for different types of personnel.

In the case of unestablished staff, the determination of costs was relatively simple. Given a narrow range of unestablished staff wages, average cost per unestablished staff was determined by dividing the total costs for unestablished staff by the number of personnel.

It was more difficult to calculate costs for medical staff. First, a listing of salary ranges for the relevant positions was obtained from the MOH accounting unit (attached as Exhibit B-1). Using this list, estimates of average salaries for the three different staff categories (doctors, nurses, paramedical staff) were determined. Second, these average salaries were used to weight the number of personnel in that category, and were then divided into the total expenditure level for established staff.

For example, in the case of Lautoka Hospital, there were 62 doctors, 243 nurses, and 59 paramedical staff. Based on the salary list, average salaries were as follows:

- Doctors                                 \$22,000
- Nurses                                    \$13,000
- Paramedical                             \$ 9,000

The number of doctors (62) was multiplied by the average salary (\$22,000) to arrive at a total of \$1,364,000. This was repeated for the other two staff categories. These three figures were then totalled, to arrive at a figure of 5,054,000. This figure was used for weighting purposes only, and did not represent any actual expenditure level.

The total expenditure level for established staff was \$4,126,667. This figure was then divided by the weighting figure above, to arrive at a weighting ratio of 0.82. Thus, the actual average salary for a doctor at this hospital, based on actual expenditures, was estimated to be \$17,963. This procedure was repeated for nurses and paramedical staff, and the resulting figures were used as a basis for calculating personnel costs by department.



**EXHIBIT B-1  
HOSPITAL STAFF SALARY RANGES**

Senior Medical Officers

|            |          |
|------------|----------|
| Consultant | \$35,634 |
| CMO        | \$27,934 |
| DMO        | \$22,405 |
| SMO        | \$17,435 |
| MO         | \$12,738 |

Nursing Staff

|               |          |
|---------------|----------|
| Senior Matron | \$21,634 |
| Matron        | \$16,595 |
| Senior Sister | \$12,948 |
| Sister        | \$ 8,020 |
| Sister/Nurse  | \$ 6,274 |

Paramedical Staff

|                        |                      |
|------------------------|----------------------|
| Lab Superintendent     | \$15,195             |
| Lab Technician         | \$ 7,521 to \$12,459 |
| Lab Assistant          | \$ 4,475             |
| Sup. Radiographer      | \$15,195             |
| Rad. Technician        | \$ 7,521 to \$ 9,736 |
| FSM Student Radio.     | \$ 4,475             |
| Sr. Pharmacy Officer   | \$17,435             |
| Pharmacy Officer       | \$12,599             |
| Sup. Pharm. Technician | \$ 9,736             |
| Sr. Pharm. Technician  | \$ 7,521             |
| Pharmacy Assistant     | \$ 4,475             |

Note: These figures represent base salaries only.

Source: MOH Accounting Unit

Once average cost per type of personnel was derived, it was a simple matter to multiply the number of personnel in each department by the average cost, to arrive at a total cost for personnel.

The worksheets for each of the four facilities analyzed are contained in Appendix C. These worksheets detail the steps taken in calculating personnel cost by department.

## B. Drugs and Special Supplies

Based on the information provided by the Government Pharmacy, it was possible to allocate drugs and special supplies among hospital departments. The pharmacy data indicated amounts for x-ray, dental, and laboratory supplies. Again, because these were 1989 data, the relative proportions were used to arrive at figures for 1990. Thus, for example, in 1989, eight percent of the CWM line item for drugs was for x-ray supplies. This figure was then applied to the 1990 expenditures to reach an estimate.

The Government Pharmacy reports expenditures for all dental clinics and all laboratories as two individual categories, equivalent to facilities. These figures had to be allocated across specific facilities. For laboratory costs, this was based on 1988 data regarding the numbers of laboratory tests conducted at the three major facilities (CWM, Lautoka, and Labasa). Thus, because 26 percent of laboratory tests were conducted at CWM, 26 percent of laboratory costs for the health sector were allocated to CWM Hospital. It should also be noted that within the MOH expenditure data for each facility, there was usually a small line item for laboratory supplies.

Dental costs were slightly more difficult. The dental department at CWM is responsible for distributing all dental supplies; the administrative officer there estimated that 40 percent of all supplies remained at CWM, and that 30 percent went to Lautoka. It was thus estimated that approximately five percent of the costs went to Labasa Hospital, and that each of the 21 dental clinics in the country received an equal share of about one percent of costs. It was not possible to verify these estimates, because the Government Pharmacy had no additional information.

All other drugs and specialty supplies were allocated to the pharmacy. These costs would be allocated across departments in the next step.

### C. Other Operating Expenses

The remaining operating expenditures were allocated among the departments identified in step 2 above. This was based on the relative proportion of personnel costs among the different departments. Although this was not as accurate an allocation as a cost accounting system might allow, it was assumed to be reasonable, given that higher proportions of personnel costs in a department would indicate higher utilization and thus, higher requirements for supplies and other operating expenditures.

In the case of rations, costs were allocated exclusively to inpatient services. This was not entirely accurate, since some of the meals are provided to hospital staff, not just to inpatients. However, lacking further detail, it was not possible to determine how much of those costs were not attributable to inpatient services.

In one other area, the lack of detailed information necessitated a simplifying assumption. Electricity costs were allocated across the hospital on a proportional basis; however, one would assume that radiology, surgery, and pharmacy would account for higher than proportionate electrical costs. Ideally, one would be able to isolate the costs for those departments, and then divide the rest proportionally across hospital services.

### 4. Calculation of Unit Costs

Once costs have been assigned to the individual departments, determination of unit costs is a simple matter of dividing totals by utilization volumes. Before doing so, however, one final refinement was required--assigning pharmacy costs to inpatient and outpatient services. This was accomplished on the basis of the relative weight of inpatient and outpatient costs, exclusive of drugs. Thus, for example, at Lautoka Hospital, inpatient costs were approximately four times those of outpatient costs; inpatient services were thus assigned 80 percent of pharmacy costs, and outpatient services received the remainder. If information on the number of prescriptions is available, that should be used to allocate drug costs between the two services.

It is important to keep in mind the definition of the unit costs. In the case of an inpatient day, the costs included nursing services, food, drugs, bed, and any other medical attention required, including surgical procedures. It did

not, however, include any diagnostic services, as those were costed separately.<sup>8</sup> The cost of an outpatient visit included medical treatment and drugs. For x-ray and lab costs, it should be noted that the cost figures provided were averages, representing wide ranges of services. It was not possible, however, to arrive at more refined estimates in this study.

For CWM and Lautoka Hospital, the cost of an inpatient day was an average for all types of beds, including both general wards and the paying wards or private rooms. Based on available information, it was not possible to differentiate among different types of rooms. However, those patients in paying wards receive no additional medical care, nor do they receive more or better food. The primary difference in service is additional space (which is not included in these cost estimates) and perhaps hot water and/or air conditioning. While there is likely an additional resource cost for those beds, the difference could not be measured given available data, and was judged to be minimal.

## 5. Comparison of Costs and Revenues

To compare costs and revenues, samples of inpatient and outpatient records were reviewed. Random samples of 30 inpatient and 20 outpatient records were examined at each of the four hospitals. The following data were collected:

- |                     |   |
|---------------------|---|
| Inpatient records:  | <ul style="list-style-type: none"><li>• length of stay</li><li>• number of x-ray exams</li><li>• number of lab tests</li><li>• type and dosage of drugs prescribed</li><li>• fee paid, if any</li></ul> |
| Outpatient records: | <ul style="list-style-type: none"><li>• number of x-ray exams</li><li>• number of lab tests</li><li>• type and dosage of drugs prescribed</li></ul>   |

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<sup>8</sup> The method used in this study for determining the cost of an inpatient day included the cost of drugs. Total pharmacy costs for a facility were divided between inpatient and outpatient services. Alternatively, the cost per inpatient day could be calculated exclusive of drug costs. To arrive at a cost per stay would then involve adding the cost of drugs (and diagnostic services) to the cost per day.

Based on the sample of inpatient records, it was possible to determine averages for length of stay, x-ray exams and lab tests conducted, and cost of drugs prescribed. The latter was done by collecting data from the Government Pharmacy on the cost of drugs prescribed. A similar exercise was carried out for outpatient records.

It was thus possible to arrive at an estimate for an average cost per stay in the hospital, including all resources used. This cost included all diagnostic services, despite the fact that patients are not charged for most of those services. Comparing this average cost per stay with the average revenue per patient (gathered from the medical record review) provided an estimate of the gap between the real cost of providing hospital services and the revenues received.

APPENDIX C:  
DETAILED COSTING DATA FOR CWM, LAUTOKA, NADI, AND SIGATOKA HOSPITALS,  
VALELEVU HEALTH CENTER, AND THE GOVERNMENT PHARMACY

By Facility

1. Allocation of operating expenditures
2. Calculation of unit costs
3. Expenditures, 1990
4. Utilization statistics
5. Inpatient record review [hospitals only]

Government Pharmacy

1. Allocation of drugs to facilities, 1989
2. Operating expenditures, 1990
3. Facility drug costs, 1990

CWM Hospital -- Allocation of Operating Expenditures, 1990

|                   | Personnel   | Special<br>Supplies | Operating<br>Expenditures | Total        |
|-------------------|-------------|---------------------|---------------------------|--------------|
| Dental Department | \$390,159   | \$51,019            | \$49,059                  | \$490,237    |
| Radiology         | \$392,080   | \$109,393           | \$49,300                  | \$550,773    |
| Laboratories      | \$405,208   | \$451,005           | \$50,951                  | \$907,164    |
| Pharmacy          | \$107,665   | \$1,258,023         | \$13,538                  | \$1,379,226  |
| OPD               | \$1,264,297 | \$0                 | \$158,973                 | \$1,423,270  |
| IPD               | \$4,721,885 | \$261,875           | \$593,729                 | \$5,577,489  |
| Total             | \$7,281,295 | \$2,131,315         | \$915,549                 | \$10,328,159 |

CWM Hospital -- Calculation of Unit Costs

|                   | Total Costs  | Utiliz. | Cost/unit                |
|-------------------|--------------|---------|--------------------------|
| Dental Department | \$490,237    | NA      | NA                       |
| Radiology         | \$550,773    | 56,005  | \$9.83                   |
| Laboratories      | \$907,164    | 353,872 | \$2.56 (util. from 1988) |
| OPD               | \$1,699,115  | 233,007 | \$7.29                   |
| IPD               | \$6,680,870  | 128,644 | \$51.93                  |
| Total             | \$10,328,159 |         |                          |

Colonial War Memorial Hospital -- Expenditures 1990

Actual Expenditures

|                              |              |           |             |            |
|------------------------------|--------------|-----------|-------------|------------|
| Personal Emoluments          | \$5,129,699  |           |             |            |
| Benefits, Allowances         | \$844,861    |           |             | % of total |
| Wages                        | \$1,105,570  | Personnel |             |            |
| Allowances, OT               | \$200,960    | Subtotal  | \$7,281,090 | 70.5%      |
| Drugs, dressings             | \$1,258,023  |           |             | 12.2%      |
| Laboratory supplies          | \$451,005    |           |             |            |
| X-ray supplies               | \$109,393    |           |             |            |
| Dental supplies              | \$51,019     |           |             |            |
| Travel                       | \$15,320     |           |             |            |
| Subsistence & Hotel Expenses | \$2,823      |           |             |            |
| Telecommunication            | \$80,939     |           |             |            |
| Freight & Cartage            | \$6,269      |           |             |            |
| Transfer Expenses            | \$6,243      |           |             |            |
| Transport of Patients        | \$390        |           |             |            |
| Fuel and oil                 | \$32,837     |           |             |            |
| Spare parts & maintenance    | \$46,994     |           |             |            |
| Maintenance of equipment     | \$29,431     |           |             |            |
| Rations                      | \$261,875    |           |             |            |
| Oxygen                       | \$176,722    |           |             |            |
| General stores & incidentals | \$88,073     |           |             |            |
| Power, light, water, refig.  | \$365,264    |           |             |            |
| Laundry                      | \$35,143     |           |             |            |
| National Diabetes Centre     | \$13,005     |           |             |            |
| General Technical Equipment  | \$255        | Other     |             |            |
| Miscellaneous                | \$15,841     | Subtotal  | \$1,788,841 | 17.3%      |
| TOTAL                        | \$10,327,954 |           |             | 100.0%     |



COLONIAL WAR MEMORIAL HOSPITAL UTILIZATION STATISTICS

|                | 1987      | 1988      | 1989      | 1990                   |
|----------------|-----------|-----------|-----------|------------------------|
| Admissions     | 15,885    | 19,350    | 16,349    | 18,484                 |
| Paying         | 999       | 961       | 1,043     | 1,120                  |
| Public         | 14,886    | 18,389    | 15,306    | 17,364                 |
| % paying       | 6.3%      | 5.0%      | 6.4%      | 6.1%                   |
| Beds           | 402       | 402       | 416       | 416                    |
| Paying         | 60        | 60        | 60        | 60                     |
| Public         | 342       | 342       | 356       | 356                    |
| Patient Days   | 130,087   | 135,070   | 134,578   | 128,644                |
| Paying         | 7,665     | 8,431     | 9,719     | 10,287                 |
| Public         | 122,422   | 126,639   | 124,859   | 118,357                |
| Outpatients    | 319,020   | 323,444   | 269,098   | 233,007                |
| GOPD           | 212,681   | 217,681   | 164,656   | 131,835                |
| Civil serv.    | 6,609     | 6,653     | 5,491     | 4,575                  |
| SOPD           | 99,730    | 99,110    | 98,951    | 96,597                 |
| % to pay       | 31.3%     | 30.6%     | 36.8%     | 41.5%                  |
| ALOS           | 8.2       | 7.0       | 8.2       | 7.0                    |
| Paying         | 7.7       | 8.8       | 9.3       | 9.2                    |
| Public         | 8.2       | 6.9       | 8.2       | 6.8                    |
| Occ. Rate      | 88.7%     | 92.1%     | 88.6%     | 84.7%                  |
| Paying         | 35.0%     | 38.5%     | 44.4%     | 47.0%                  |
| Public         | 98.1%     | 101.4%    | 96.1%     | 91.1%                  |
| Revenue        |           |           |           |                        |
| Inpatients-pay | \$46,370  | \$49,370  | \$52,561  | \$55,561               |
| Inpatients-gen | \$16,431  | \$18,750  | \$17,971  | 17132                  |
| Outpatients    | \$0       | \$0       | \$0       | \$0                    |
| Dental         | N/A       | \$41,156  | \$39,302  | \$57,840               |
| X-rays         | \$64,796  | \$58,055  | \$52,586  | \$54,888               |
| Laboratory     | \$11,808  | \$34,238  | \$42,202  | \$47,844 (11 mo. only) |
| Maternity      | N/A       | \$27,806  | \$57,220  | \$65,046               |
| Physiotherapy  | \$207     | \$686     | \$809     | \$901                  |
| Total          | \$139,612 | \$230,061 | \$262,651 | \$299,212              |
| X-ray exams    | 50,925    | 52,003    | 56,580    | 56,005                 |
| X-ray patients | 41,067    | 42,806    | 46,623    | 39,208                 |
| X-ray revenue  | \$64,796  | \$58,055  | \$52,586  | \$54,888               |
| Revenue/exam   | \$1.27    | \$1.12    | \$0.93    | \$0.98                 |
| Revenue/pat.   | \$1.58    | \$1.36    | \$1.13    | \$1.40                 |

COLONIAL WAR MEMORIAL HOSPITAL -- INPATIENT RECORD ANALYSIS

| Record         | Stay     | X-rays     | Lab tests  | Drug Cost     | Fee Paid      | Notes  |
|----------------|----------|------------|------------|---------------|---------------|--|
| 1              | 5        | 2          | 6          | \$1.12        | \$3.00        |  |
| 2              | 1        | 4          | 5          | \$0.51        | \$0.50        |  |
| 3              | 7        | 1          | 3          | \$3.21        | \$3.50        | one surgical procedure                               |
| 4              | 3        | 1          | 1          | \$0.38        | \$0.00        | two surgical procedures; child patient, no fees      |
| 5              | 21       | 0          | 3          | \$0.45        | \$1.00        | two surgical procedures                              |
| 6              | 4        | 0          | 6          | \$16.82       | \$2.00        | five surgical procedures                             |
| 7              | 3        | 0          | 3          | \$0.36        | \$48.00       | two surgical procedures; paying patient              |
| 8              | 2        | 0          | 4          | \$9.04        | \$1.00        |  |
| 9              | 5        | 6          | 5          | \$0.79        | \$2.50        |  |
| 10             | 7        | 0          | 3          | \$2.73        | \$3.50        | one surgical procedure                               |
| 11             | 8        | 2          | 5          | \$13.71       | \$4.00        | two surgical procedures                              |
| 12             | 21       | 1          | 2          | \$11.05       | \$0.00        |  |
| 13             | 2        | 1          | 6          | \$0.00        | \$1.00        |  |
| 14             | 3        | 0          | 4          | \$2.76        | \$1.50        | one surgical procedure                               |
| 15             | 21       | 1          | 1          | \$1.33        | \$1.00        | two surgical procedures                              |
| 16             | 16       | 2          | 3          | \$6.02        | \$8.00        | two surgical procedures                              |
| 17             | 4        | 1          | 5          | \$19.29       | \$2.00        |  |
| 18             | 5        | 3          | 6          | \$3.62        | \$2.50        |  |
| 19             | 4        | 0          | 1          | \$1.07        | \$3.60        | two surgical procedures; paid by Blue Shield         |
| 20             | 6        | 3          | 3          | \$17.54       | \$3.00        | two surgical procedures                              |
| 21             | 17       | 2          | 6          | \$9.71        | \$8.50        | two surgical procedures                              |
| 22             | 8        | 1          | 4          | \$10.84       | \$0.00        | two surgical procedures; exemption certificate       |
| 23             | 3        | 2          | 3          | \$7.34        | \$1.50        |  |
| 24             | 2        | 2          | 6          | \$3.20        | \$1.00        | one surgical procedure                               |
| 25             | 3        | 2          | 5          | \$4.97        | \$1.50        |  |
| 26             | 5        | 0          | 4          | \$0.51        | \$2.50        | two surgical procedures                              |
| 27             | 4        | 2          | 0          | \$21.42       | \$0.00        | one surgical procedure; child patient, no fees       |
| 28             | 1        | 0          | 3          | \$0.15        | \$0.50        | two surgical procedures                              |
| 29             | 1        | 0          | 3          | \$0.00        | \$0.50        | three surgical procedures                            |
| 30             | 9        | 2          | 4          | \$9.35        | \$4.50        | two surgical procedures                              |
| <b>Average</b> | <b>7</b> | <b>1.4</b> | <b>3.8</b> | <b>\$5.98</b> | <b>\$3.74</b> |  |
|                |          |            |            |               | <b>\$4.15</b> | <b>(exclusive of exemptions)</b>                     |
|                |          |            |            |               | <b>\$2.42</b> | <b>(exclusive of exemptions and paying patients)</b> |

Lautoka Hospital -- Allocation of Operating Expenditures, 1990

|                   | Personnel   | Special<br>Supplies | Operating<br>Expenditure | Total       |
|-------------------|-------------|---------------------|--------------------------|-------------|
| Dental Department | \$253,595   | \$38,237            | \$30,786                 | \$322,618   |
| Radiology         | \$196,915   | \$86,304            | \$23,821                 | \$307,040   |
| Pathology         | \$262,700   | \$64,449            | \$31,778                 | \$358,927   |
| Pharmacy          | \$52,843    | \$992,501           | \$6,392                  | \$1,051,736 |
| OPD               | \$836,106   | \$0                 | \$101,143                | \$937,249   |
| IPD               | \$3,555,779 | \$302,807           | \$430,137                | \$4,288,723 |
| Total             | \$5,157,938 | \$1,484,298         | \$624,057                | \$7,266,293 |

Lautoka Hospital -- Calculation of Unit Costs

|                   | Total Costs | Utiliz. | Cost/unit |
|-------------------|-------------|---------|-----------|
| Dental Department | \$322,618   | 30,546  | \$10.56   |
| Radiology         | \$307,040   | 40,328  | \$7.61    |
| Pathology         | \$358,927   | 261,923 | \$1.37    |
| OPD               | \$1,147,596 | 231,740 | \$4.95    |
| IPD               | \$5,130,112 | 97,287  | \$52.73   |
| Total             | \$7,266,293 |         |           |

Lautoka Hospital -- Expenditures 1990

|                              | Actual Expenditures |                | % of total    |
|------------------------------|---------------------|----------------|---------------|
| Wages & allowances           | \$5,158,791         |                | 71.0%         |
| Drugs, dressings, etc.       | \$992,501           |                | 13.7%         |
| Laboratory supplies          | \$64,449            |                |               |
| X-ray supplies               | \$86,304            |                |               |
| Dental supplies              | \$38,237            |                |               |
| Travel                       | \$13,933            |                |               |
| Subsistence & Hotel Expenses | \$2,134             |                |               |
| Telecommunication            | \$78,052            |                |               |
| Freight & Cartage            | \$3,672             |                |               |
| Transfer Expenses            | \$3,453             |                |               |
| Transport of Patients        | \$1,269             |                |               |
| Fuel and oil                 | \$21,874            |                |               |
| Spare parts & maintenance    | \$14,477            |                |               |
| Maintenance of equipment     | \$2,059             |                |               |
| Rations                      | \$302,807           |                |               |
| Oxygen                       | \$108,264           |                |               |
| General stores & incidentals | \$49,456            |                |               |
| Power, light, water, refrig. | \$299,768           |                |               |
| Laundry                      | \$14,560            |                |               |
| Crutches                     | \$1,225             |                |               |
| Buildings                    | \$100               |                |               |
| Machines                     | \$1,033             | Other Subtotal |               |
| Miscellaneous                | \$8,728             | \$1,115,854    | 15.4%         |
| <b>TOTAL</b>                 | <b>\$7,267,146</b>  |                | <b>100.0%</b> |

LAUTOKA HOSPITAL UTILIZATION STATISTICS

|                   | 1988      | 1989      | 1990      | 1991 (thru 9/30) |
|-------------------|-----------|-----------|-----------|------------------|
| Admissions        | 12,042    | 13,131    | 14,193    | 11,045           |
| Paying            | 682       | 828       | 992       | 679              |
| Public            | 11,360    | 12,303    | 13,201    | 10,366           |
| % paying          | 5.7%      | 6.3%      | 7.0%      | 6.1%             |
| Beds              | 348       | 348       | 348       | 348              |
| Paying            | 33        | 33        | 33        | 33               |
| Public            | 315       | 315       | 315       | 315              |
| Patient Days      | 97,827    | 94,416    | 97,287    | 74,664           |
| Paying            | 6,091     | 5,909     | 6,360     | 5,061            |
| Public            | 91,736    | 88,507    | 90,927    | 69,603           |
| Outpatients       | 201,991   | 218,789   | 231,740   | 178,461          |
| GOPD              | 119,472   | 134,575   | 149,957   | 109,970          |
| SOPD              | 82,519    | 84,214    | 81,783    | 68,491           |
| % to pay          | 40.9%     | 38.5%     | 35.3%     | 38.4%            |
| ALOS              | 8.1       | 7.2       | 6.9       | 6.8              |
| Paying            | 8.9       | 7.1       | 6.4       | 7.5              |
| Public            | 8.1       | 7.2       | 6.9       | 6.7              |
| Occ. Rate         | 77.0%     | 74.3%     | 76.6%     | 78.4%            |
| Paying            | 50.6%     | 49.1%     | 52.8%     | 56.0%            |
| Public            | 79.8%     | 77.0%     | 79.1%     | 80.7%            |
| Revenue           |           |           |           |                  |
| Inpatients-pay    | \$48,023  | \$41,153  | \$42,677  |                  |
| Inpatients-gen    | \$23,544  | \$23,828  | \$25,559  |                  |
| Dental            | \$31,362  | \$29,006  | \$31,746  |                  |
| X-rays            | \$50,142  | \$58,554  | \$55,348  |                  |
| Laboratory        | \$14,276  | \$9,295   | \$15,584  |                  |
| Other             | \$20,305  | \$20,296  | \$22,413  |                  |
| Total             | \$187,652 | \$182,132 | \$193,327 |                  |
| X-ray exams       | 33,081    | 40,610    | 40,328    | 30,389           |
| Revenue/exam      | \$0.95    | \$0.71    | \$0.79    |                  |
| Lab tests         | 267,645   | 297,539   | 261,923   |                  |
| Revenue/test      | \$0.05    | \$0.03    | \$0.06    |                  |
| Dental attend.    | 20,233    | 36,390    | 30,546    | 30,707           |
| Revenue/attend.   | \$1.55    | \$0.80    | \$1.04    |                  |
| Rev/pd inpt       | \$70.41   | \$49.70   | \$43.02   |                  |
| Rev/genl inpat    | \$2.07    | \$1.94    | \$1.94    |                  |
| Inpat. exemptions | 14        | 17        | 15        |                  |
| Insurance pats.   | 24        | 38        | 52        |                  |

LAUTOKA HOSPITAL -- INPATIENT RECORD ANALYSIS

| Record         | Stay     | X-rays     | Lab tests  | Drug Cost     | Fee Paid      | Notes   |
|----------------|----------|------------|------------|---------------|---------------|---|
| 1              | 9        | 2          | 4          | \$6.86        | \$4.50        |   |
| 2              | 8        | 2          | 3          | \$1.94        | \$4.00        |   |
| 3              | 7        | 1          | 4          | \$0.29        | \$3.50        |   |
| 4              | 4        | 1          | 3          | \$1.00        | \$2.00        |   |
| 5              | 3        | 1          | 3          | \$0.86        | \$1.50        |   |
| 6              | 2        | 1          | 1          | \$0.51        | \$3.40        | one surgical procedure; civil servant, paying patient |
| 7              | 7        | 2          | 4          | \$5.95        | \$3.50        |   |
| 8              | 14       | 1          | 2          | \$19.22       | \$23.80       | paying patient  |
| 9              | 3        | 0          | 4          | \$6.38        | \$1.50        | gp referral   |
| 10             | 7        | 1          | 2          | \$1.92        | \$3.50        | one surgical procedure                                |
| 11             | 4        | 0          | 4          | \$18.04       | \$2.00        | two surgical procedures; referral by gp               |
| 12             | 1        | 1          | 0          | \$0.99        | \$0.50        |   |
| 13             | 6        | 1          | 4          | \$1.25        | \$3.00        |   |
| 14             | 2        | 0          | 2          | \$0.51        | \$3.50        | two surgical procedures                               |
| 15             | 8        | 1          | 1          | \$4.38        | \$4.00        | three surgical procedures                             |
| 16             | 4        | 2          | 4          | \$11.56       | \$2.00        |   |
| 17             | 21       | 1          | 2          | \$7.46        | \$0.00        | one surgical procedure; child patient, no fees        |
| 18             | 1        | 2          | 4          | \$6.92        | \$0.50        | gp referral   |
| 19             | 3        | 0          | 2          | \$0.05        | \$1.50        |   |
| 20             | 11       | 2          | 5          | \$3.69        | \$5.00        |   |
| 21             | 7        | 5          | 3          | \$13.35       | \$28.00       | one surg. proc; paying patient, subdiv. hosp. referr  |
| 22             | 17       | 1          | 4          | \$13.12       | \$8.50        | two surgical procedures                               |
| 23             | 6        | 3          | 4          | \$27.13       | \$3.00        | one surgical procedure                                |
| 24             | 12       | 2          | 3          | \$16.12       | \$6.00        |   |
| 25             | 2        | 2          | 3          | \$0.32        | \$1.00        |   |
| 26             | 2        | 1          | 2          | \$0.72        | \$43.00       | two surgical procedures; paying patient               |
| 27             | 6        | 1          | 6          | \$9.69        | \$3.00        |   |
| 28             | 6        | 2          | 5          | \$14.01       | \$3.00        | two surgical procedures; subdiv. referral             |
| 29             | 11       | 2          | 6          | \$5.28        | \$5.50        | subdivisional hosp. referral                          |
| 30             | 4        | 1          | 3          | \$0.46        | \$2.00        |   |
| <b>Average</b> | <b>7</b> | <b>1.4</b> | <b>3.2</b> | <b>\$6.67</b> | <b>\$5.87</b> |   |
|                |          |            |            |               | <b>\$6.08</b> | <b>(exclusive of exemptions)</b>                      |
|                |          |            |            |               | <b>\$3.12</b> | <b>(exclusive of exemptions and paying patients)</b>  |

Nadi Hospital -- Allocation of Operating Expenditures, 1990

|                   | Personnel        | Special<br>Supplies | Operating<br>Expenditures | Total            |
|-------------------|------------------|---------------------|---------------------------|------------------|
| Dental Department | \$37,465         | \$1,275             | \$4,022                   | \$42,762         |
| Radiology         | \$4,695          | \$11,907            | \$504                     | \$17,106         |
| Laboratories      | \$7,326          | NA                  | \$786                     | \$8,113          |
| Pharmacy          | \$6,760          | \$107,166           | \$726                     | \$114,652        |
| OPD               | \$92,593         | \$0                 | \$9,939                   | \$102,532        |
| IPD               | \$365,503        | \$12,206            | \$39,235                  | \$416,944        |
| <b>Total</b>      | <b>\$514,342</b> | <b>\$132,554</b>    | <b>\$55,212</b>           | <b>\$702,108</b> |

Nadi Hospital -- Calculation of Unit Costs

|                   | Total Costs      | Utiliz. | Cost/unit |
|-------------------|------------------|---------|-----------|
| Dental Department | \$42,762         | 10,770  | \$3.97    |
| Radiology         | \$17,106         | 1,755   | \$9.75    |
| Laboratories      | \$8,113          | 3,590   | \$2.26    |
| OPD               | \$125,463        | 63,902  | \$1.96    |
| IPD               | \$508,665        | 8,882   | \$57.27   |
| <b>Total</b>      | <b>\$702,108</b> |         |           |

Nadi Hospital -- Expenditures 1990

Actual Expenditures

|                              |                  |           |           | % of total    |
|------------------------------|------------------|-----------|-----------|---------------|
| Personal Emoluments          | \$365,266        |           |           |               |
| Benefits, Allowances         | \$40,649         |           |           |               |
| Wages                        | \$97,000         | Personnel |           |               |
| Allowances, OT               | \$10,867         | Subtotal  | \$513,782 | 73.2%         |
| Drugs, dressings, etc.       | \$107,166        |           |           | 15.3%         |
| X-ray supplies               | \$11,907         |           |           |               |
| Dental supplies              | \$1,275          |           |           |               |
| Travel                       | \$86             |           |           |               |
| Subsistence & Hotel Expenses | \$69             |           |           |               |
| Telecommunication            | \$11,079         |           |           |               |
| Freight & Cartage            | \$675            |           |           |               |
| Transfer Expenses            | \$499            |           |           |               |
| Transport of Patients        | \$11             |           |           |               |
| Fuel and oil                 | \$9,973          |           |           |               |
| Spare parts & maintenance    | \$1,754          |           |           |               |
| Maintenance of equipment     | \$0              |           |           |               |
| Rations                      | \$12,206         |           |           |               |
| Oxygen                       | \$2,265          |           |           |               |
| General stores & incidentals | \$4,256          | Other     |           |               |
| Power, light, water, refrig. | \$24,545         | Subtotal  | \$80,600  | 11.5%         |
| <b>TOTAL</b>                 | <b>\$701,548</b> |           |           | <b>100.0%</b> |



| NADI HOSPITAL UTILIZATION STATISTICS |          |          |          |
|--------------------------------------|----------|----------|----------|
|                                      | 1988     | 1989     | 1990     |
| Admissions                           | 3,086    | 3,180    | 3,241    |
| Patient-days                         | 9,231    | 9,056    | 8,882    |
| ALOS                                 | 3.0      | 2.8      | 2.7      |
| Inpatient fees                       | \$3,319  | \$3,344  | \$3,125  |
| Outpatients                          | 56,889   | 62,017   | 63,902   |
| Xrays-total                          | 837      | 887      | 1,755    |
| Inpatients                           | 283      | 257      | 611      |
| Outpatients                          | 554      | 630      | 1,144    |
| Xray Fees                            | \$55     | \$389    | \$920    |
| Lab Tests - Total                    | 3,282    | 3,695    | 3,590    |
| Inpatients                           | 413      | 269      | 171      |
| Outpatients                          | 2,869    | 3,426    | 3,419    |
| Lab Fees                             | \$13     | \$22     | \$27     |
| Dental Pts-clinic                    | 8,720    | 8,283    | 8,279    |
| Dental Pts-school                    | 4,810    | 671      | 2,491    |
| Exempted patients                    | 223      | 214      | 261      |
| Dental Fees                          | \$8,841  | \$8,933  | \$9,087  |
| Total Revenue                        | \$14,817 | \$15,305 | \$16,349 |
| Exempted inpatients                  | 65       | 84       | 78       |

NADI HOSPITAL -- INPATIENT RECORD ANALYSIS

| Record         | Stay     | X-rays     | Lab tests  | Drug Cost     | Fee Paid      | Notes                                       |
|----------------|----------|------------|------------|---------------|---------------|---|
| 1              | 3        | 0          | 1          | \$3.88        | \$1.50        |   |
| 2              | 6        | 1          | 4          | \$16.55       | \$3.00        |   |
| 3              | 4        | 1          | 1          | \$0.69        | \$2.00        |   |
| 4              | 2        | 1          | 1          | \$0.25        | \$1.00        |   |
| 5              | 3        | 1          | 0          | \$3.36        | \$0.00        |   |
| 6              | 3        | 1          | 0          | \$3.56        | \$0.00        |   |
| 7              | 3        | 1          | 2          | \$2.11        | \$1.50        |   |
| 8              | 3        | 0          | 3          | \$0.98        | \$1.50        |   |
| 9              | 3        | 0          | 1          | \$1.18        | \$1.50        |   |
| 10             | 6        | 0          | 0          | \$8.43        | \$0.00        | Child patient, no fees                      |
| 11             | 2        | 0          | 0          | \$11.38       | \$0.00        |   |
| 12             | 3        | 1          | 0          | \$0.77        | \$2.00        |   |
| 13             | 1        | 0          | 1          | \$2.18        | \$0.00        |   |
| 14             | 3        | 0          | 0          | \$6.60        | \$1.50        |   |
| 15             | 2        | 0          | 0          | \$5.84        | \$1.00        |   |
| 16             | 5        | 2          | 1          | \$4.51        | \$2.50        |   |
| 17             | 4        | 1          | 1          | \$1.11        | \$2.00        |   |
| 18             | 1        | 0          | 0          | \$7.01        | \$0.00        | two other procedures done                   |
| 19             | 4        | 0          | 0          | \$15.36       | \$2.00        | referred from health centre                 |
| 20             | 2        | 1          | 0          | \$3.66        | \$0.00        | child patient, no fees; referred to Lautoka |
| 21             | 1        | 1          | 2          | \$0.68        | \$0.00        | referred to Lautoka                         |
| 22             | 3        | 0          | 1          | \$2.46        | \$1.50        |   |
| 23             | 2        | 0          | 0          | \$4.52        | \$1.00        |   |
| 24             | 1        | 1          | 0          | \$1.04        | \$0.00        | Child patient, no fees                      |
| 25             | 4        | 0          | 1          | \$1.94        | \$0.00        | Civil servant, no fees                      |
| 26             | 2        | 1          | 0          | \$2.53        | \$1.00        |   |
| 27             | 4        | 1          | 1          | \$1.57        | \$2.00        |   |
| 28             | 32       | 0          | 3          | \$30.49       | \$0.00        | Additional surgical procedures done         |
| 29             | 4        | 0          | 0          | \$9.34        | \$2.00        | One surgical procedure                      |
| 30             | 2        | 0          | 2          | \$6.66        | \$1.00        |   |
| <b>Average</b> | <b>4</b> | <b>0.5</b> | <b>0.9</b> | <b>\$5.35</b> | <b>\$1.05</b> |   |
|                |          |            |            |               | <b>\$1.21</b> | <b>(exclusive of exemptions)</b>            |

Sigatoka Hospital -- Allocation of Operating Expenditures, 1990

|                   | Personnel        | Special<br>Supplies | Operating<br>Expenditures | Total            |
|-------------------|------------------|---------------------|---------------------------|------------------|
| Dental Department | \$27,998         | \$1,275             | \$2,927                   | \$32,200         |
| Radiology         | \$11,452         | \$5,532             | \$1,197                   | \$18,181         |
| Laboratories      | \$11,452         | NA                  | \$1,197                   | \$12,649         |
| Pharmacy          | \$11,452         | \$86,667            | \$1,197                   | \$99,316         |
| OPD               | \$124,734        | NA                  | \$13,038                  | \$137,773        |
| IPD               | \$488,776        | NA                  | \$51,092                  | \$539,868        |
| <b>Total</b>      | <b>\$675,866</b> | <b>\$93,474</b>     | <b>\$70,648</b>           | <b>\$839,988</b> |

Sigatoka Hospital -- Calculation of Unit Costs

|                   | Total Costs      | Utiliz. | Cost/unit |
|-------------------|------------------|---------|-----------|
| Dental Department | \$32,200         | 13,730  | \$2.35    |
| Radiology         | \$18,181         | 1,406   | \$12.93   |
| Laboratories      | \$12,649         | 3,823   | \$3.31    |
| OPD               | \$157,636        | 26,947  | \$5.85    |
| IPD               | \$619,321        | 11,349  | \$54.57   |
| <b>Total</b>      | <b>\$839,988</b> |         |           |

Sigatoka Hospital -- Expenditures 1990

Actual Expenditures

|                              |                  |           |           | % of total    |
|------------------------------|------------------|-----------|-----------|---------------|
| Personal Emoluments          | \$507,614        |           |           |               |
| Benefits, Allowances         | \$64,282         |           |           |               |
| Wages                        | \$92,965         | Personnel |           |               |
| Allowances, OT               | \$11,040         | Subtotal  | \$675,901 | 80.5%         |
| Drugs, dressings, etc.       | \$86,667         |           |           | 10.3%         |
| X-ray supplies               | \$5,532          |           |           |               |
| Dental supplies              | \$1,275          |           |           |               |
| Travel                       | \$149            |           |           |               |
| Subsistence & Hotel Expenses | \$253            |           |           |               |
| Telecommunication            | \$8,284          |           |           |               |
| Freight & Cartage            | \$108            |           |           |               |
| Transfer Expenses            | \$1,955          |           |           |               |
| Transport of Patients        | \$16             |           |           |               |
| Fuel and oil                 | \$6,954          |           |           |               |
| Spare parts & maintenance    | \$3,281          |           |           |               |
| Maintenance of equipment     | \$0              |           |           |               |
| Rations                      | \$22,373         |           |           |               |
| Oxygen                       | \$2,007          |           |           |               |
| General stores & incidentals | \$3,333          | Other     |           |               |
| Power, light, water, refrig. | \$21,935         | Subtotal  | \$77,455  | 9.2%          |
| <b>TOTAL</b>                 | <b>\$840,023</b> |           |           | <b>100.0%</b> |

**SIGATOKA HOSPITAL UTILIZATION STATISTICS**

|               | 1988            | 1989            | 1990                                 |
|---------------|-----------------|-----------------|--------------------------------------|
| Admissions    | 3,134           | 3,619           | 3,155                                |
| Patient-days  | 11,889          | 12,582          | 11,349                               |
| ALOS          | 3.8             | 3.5             | 3.6                                  |
| Outpatients   | 51,997          | 54,979          | 26,947 (88 & 89 for all subdivision) |
| Xrays         | 1,509           | 3,093           | 1,406                                |
| Lab           | 2,391           | 1,924           | 3,823                                |
| Dental        | 17,011          | 8,547           | 13,730                               |
| Revenue       |                 |                 |                                      |
| Inpatient     | \$4,494         | \$4,714         | \$4,827                              |
| Dental        | \$12,657        | \$14,010        | \$14,245                             |
| Misc.         | \$19,926        | \$14,979        | \$2,729                              |
| <b>TOTAL</b>  | <b>\$37,077</b> | <b>\$33,703</b> | <b>\$21,801</b>                      |
| Rev/inpt      | \$1.43          | \$1.30          | \$1.53                               |
| Rev/dental pt | \$0.74          | \$1.64          | \$1.04                               |

SIGATOKA HOSPITAL -- INPATIENT RECORD ANALYSIS

| Record         | Stay     | X-rays     | Lab tests  | Drug Cost     | Fee Paid      | Notes  |
|----------------|----------|------------|------------|---------------|---------------|--|
| 1              | 2        | 0          | 2          | \$0.51        | \$1.00        |  |
| 2              | 2        | 0          | 0          | \$0.30        | \$1.00        | one surgical procedure; 6 tests in antenatal clinic  |
| 3              | 2        | 0          | 0          | \$0.15        | \$1.00        | one surgical procedure; five lab tests in ANC        |
| 4              | 1        | 0          | 0          | \$0.66        | \$0.50        | one surgical procedure; 5 lab tests in 13 ANC visits |
| 5              | 3        | 0          | 0          | \$0.15        | \$1.50        | one surgical procedure; 5 lab tests in 12 ANC visits |
| 6              | 10       | 0          | 1          | \$10.54       | \$5.00        | one surgical procedure                               |
| 7              | 4        | 0          | 0          | \$2.36        | \$2.00        |  |
| 8              | 8        | 1          | 0          | \$7.04        | \$4.00        |  |
| 9              | 1        | 0          | 0          | \$1.21        | \$0.50        |  |
| 10             | 3        | 0          | 1          | \$1.86        | \$1.50        |  |
| 11             | 3        | 0          | 0          | \$3.68        | \$0.50        | child patient; fee charged to accompanying parent    |
| 12             | 2        | 0          | 0          | \$3.29        | \$1.00        | child patient; fee charged to accompanying parent    |
| 13             | 3        | 0          | 0          | \$0.66        | \$0.00        | mental patient; exempt                               |
| 14             | 3        | 2          | 0          | \$0.52        | \$1.50        |  |
| 15             | 1        | 0          | 0          | \$1.25        | \$0.00        | one surgical procedure; civil servant, no fee        |
| 16             | 9        | 0          | 0          | \$26.54       | \$4.50        |  |
| 17             | 6        | 0          | 2          | \$14.97       | \$3.00        |  |
| 18             | 1        | 0          | 2          | \$2.55        | \$0.50        |  |
| 19             | 6        | 0          | 3          | \$3.69        | \$0.00        | hospital employee; exempt                            |
| 20             | 2        | 0          | 0          | \$0.89        | \$1.00        |  |
| 21             | 2        | 0          | 1          | \$0.89        | \$1.00        | one surgical procedure                               |
| 22             | 6        | 0          | 0          | \$1.97        | \$0.00        | mental patient; exempt                               |
| 23             | 14       | 1          | 1          | \$10.81       | \$2.00        | child patient; fee for accompanying parent           |
| 24             | 13       | 0          | 0          | \$6.49        | \$0.00        | exemption certificate                                |
| 25             | 3        | 0          | 1          | \$1.43        | \$1.50        |  |
| 26             | 2        | 0          | 0          | \$4.41        | \$0.00        | child patient, referred from rural health centre     |
| 27             | 16       | 0          | 3          | \$6.44        | \$8.00        |  |
| 28             | 2        | 1          | 0          | \$3.27        | \$1.00        |  |
| 29             | 3        | 0          | 1          | \$4.42        | \$1.50        |  |
| 30             | 2        | 0          | 0          | \$4.97        | \$0.00        | child patient  |
| <b>Average</b> | <b>5</b> | <b>0.2</b> | <b>0.6</b> | <b>\$4.26</b> | <b>\$1.50</b> |  |
|                |          |            |            |               | <b>\$1.96</b> | <b>(exclusive of exemptions)</b>                     |

Valelevu Health Centre--Allocation of Operating Expenditures, 1990

|                   | Personnel        | Special<br>Supplies | Operating<br>Expenditures | Total            |
|-------------------|------------------|---------------------|---------------------------|------------------|
| Dental Department | \$9,332          | \$1,275             | \$616                     | \$11,223         |
| Pharmacy          | \$4,666          | \$49,478            | \$308                     | \$54,452         |
| OPD               | \$66,656         | NA                  | \$4,400                   | \$71,056         |
| Public Health     | \$26,960         | NA                  | \$1,780                   | \$28,740         |
| <b>Total</b>      | <b>\$107,614</b> | <b>\$50,753</b>     | <b>\$7,104</b>            | <b>\$165,471</b> |

Valelevu Health Centre -- Calculation of Unit Costs

|                   | Total Costs      | Utiliz. | Cost/unit |
|-------------------|------------------|---------|-----------|
| Dental Department | \$11,223         | 10,842  | \$1.04    |
| OPD               | \$125,508        | 100,000 | \$1.26    |
| <b>Total</b>      | <b>\$165,471</b> |         |           |

Valelevu Health Centre -- Expenditures 1990

Actual Expenditures

|                              |                  |           |           | % of total    |
|------------------------------|------------------|-----------|-----------|---------------|
| Personal Emoluments          | \$86,833         |           |           |               |
| Benefits, Allowances         | \$9,605          |           |           |               |
| Wages                        | \$9,920          | Personnel |           |               |
| Allowances, OT               | \$1,262          | Subtotal  | \$107,619 | 65.0%         |
| Drugs                        | \$49,478         |           |           | 29.9%         |
| Dental supplies              | \$1,275          |           |           |               |
| Travel                       | \$108            |           |           |               |
| Subsistence & Hotel Expenses | \$320            |           |           |               |
| Telecommunication            | \$1,888          |           |           |               |
| Transfer Expenses            | \$379            |           |           |               |
| Fuel and oil                 | \$1,228          |           |           |               |
| Spare parts & maintenance    | \$621            |           |           |               |
| General stores & incidentals | \$840            | Other     |           |               |
| Power, light, water, refrig. | \$1,722          | Subtotal  | \$8,379   | 5.1%          |
| <b>TOTAL</b>                 | <b>\$165,476</b> |           |           | <b>100.0%</b> |

Note: Expenditures for Valelevu are taken as a proportion of SDMO Suva expenditures, based on relative outpatient attendance in 1989.



Valelevu Health Center

|                      | 1986     | 1987     | 1988     | 1989     | 1990     |
|----------------------|----------|----------|----------|----------|----------|
| Outpatients          |          |          | 87,000   | 92,000   | 100,000  |
| Dental patients      | 8,417    | 9,114    | 10,620   | 11,355   | 10,842   |
| Dental revenue       | \$9,044  | \$11,982 | \$13,944 | \$13,157 | \$12,854 |
| Paying pts           | 4,318    | 5,248    | 6,001    | 6,100    | 6,206    |
| Adults               | 4,090    | 5,079    | 5,843    | 5,970    | 5,952    |
| Children >15         | 228      | 169      | 158      | 130      | 254      |
| Revenue/patient      | \$1.07   | \$1.31   | \$1.31   | \$1.16   | \$1.19   |
| Revenue/paying pt.   | \$2.09   | \$2.28   | \$2.32   | \$2.16   | \$2.07   |
| Non-paying pts       | 3,999    | 3,851    | 391      | 381      | 4,636    |
| Adults               | 607      | 668      | 140      | 144      | 604      |
| Children             | 3,392    | 3,183    | 251      | 237      | 4,032    |
| % of pts. who pay    | 51.3%    | 57.6%    | 56.5%    | 53.7%    | 57.2%    |
| % of income exempts* | 4.3%     | 4.4%     | 0.8%     | 0.8%     | 3.3%     |
| Total Revenue        | \$18,916 | \$16,329 | \$14,407 | \$16,534 | \$11,888 |
| Dental               | \$9,021  | \$11,861 | \$13,691 |          |          |
| Dispensary           |          |          | \$578    |          |          |
| FP                   | \$1,061  | \$788    | \$403    |          |          |
| Outpatients          | \$7,362  | \$2,418  |          |          |          |
| Ambulance            | \$1,259  | \$157    |          |          |          |
| Misc.                | \$211    |          |          |          |          |

\*based on 60% of non-paying patients having exemption cards

Government Pharmacy Data - 1989

|                      | Drugs     | Dressings | Xray     | Inst/Appl | Linen/Unif | Other    | Total       |       |
|----------------------|-----------|-----------|----------|-----------|------------|----------|-------------|-------|
| CWM Hospital         | \$590,948 | \$57,499  | \$68,075 | \$88,860  | \$54,310   | \$14,651 | \$874,343   | 26.4% |
| Lautoka              | \$496,565 | \$31,441  | \$56,452 | \$75,064  | \$25,249   | \$5,031  | \$689,802   | 20.9% |
| Ref & Spec. Hosp     |           |           |          |           |            |          | \$523,759   | 15.8% |
| Nursing School       |           |           |          |           |            |          | \$13,370    | 0.4%  |
| Dental Clinics       |           |           |          |           |            |          | \$81,555    | 2.5%  |
| Path. Labs           |           |           |          |           |            |          | \$59,623    | 1.8%  |
| Mil. Hosp.           |           |           |          |           |            |          | \$13,425    | 0.4%  |
| Medical School       |           |           |          |           |            |          | \$841       | 0.0%  |
| Subtotal             |           |           |          |           |            |          | \$2,256,718 | 68.3% |
| Nadi Hosp.           | \$64,085  | \$4,402   | \$681    | \$3,815   | \$2,109    | \$1,045  | \$76,137    | 2.3%  |
| Sigatoka             | \$47,810  | \$3,705   | \$2,056  | \$3,550   | \$1,433    | \$399    | \$58,953    | 1.8%  |
| Other subdiv.        |           |           |          |           |            |          | \$405,843   | 12.3% |
| Subtotal             |           |           |          |           |            |          | \$540,933   | 16.4% |
| Valelevu             | \$30,250  |           |          | \$676     |            | \$711    | \$31,637    | 1.0%  |
| Korolevu             | \$6,250   |           |          | \$37      |            | \$87     | \$6,374     | 0.2%  |
| Other health centres |           |           |          |           |            |          | \$319,824   | 9.7%  |
| Subtotal             |           |           |          |           |            |          | \$357,835   | 10.8% |

**Nursing Stations/  
DMOs/Hlth sisters**

**\$89,102**

**2.7%**

**Other insts**

**\$61,465**

**1.9%**

**Subtotal**

**\$150,567**

**4.6%**

**TOTAL**

**\$1,235,908**

**\$3,306,053**

**GOVERNMENT PHARMACY - 1990 ACTUAL EXPENDITURES**

|                                |                    |
|--------------------------------|--------------------|
| <b>Personal Emoluments</b>     | <b>\$118,030</b>   |
| <b>Benefits, allowances</b>    | <b>\$17,713</b>    |
| <b>Wages</b>                   | <b>\$144,360</b>   |
| <b>Allowances</b>              | <b>\$32,842</b>    |
| <b>Travel, Communications</b>  | <b>\$11,126</b>    |
| <b>Maintenance, Operations</b> | <b>\$11,950</b>    |
| <b>Drugs</b>                   | <b>\$4,834,431</b> |
| <b>Total</b>                   | <b>\$5,170,452</b> |

**Total as percentage of drug costs** **107%**

## FACILITY DRUG COSTS - 1990

| Facility                  | % of total    | Cost               |
|---------------------------|---------------|--------------------|
| CWM Hospital              | 26.4%         | \$1,367,416        |
| Lautoka Hospital          | 20.9%         | \$1,078,805        |
| Ref. & Spec. Hospitals    | 15.8%         | \$819,125          |
| Medical & Nursing Schools | 0.4%          | \$22,225           |
| Dental Clinics            | 2.5%          | \$127,547          |
| Pathol. Labs              | 1.8%          | \$93,246           |
| Military Hospital         | 0.4%          | \$20,996           |
| Nadi Hospital             | 2.3%          | \$119,073          |
| Sigatoka Hospital         | 1.8%          | \$92,199           |
| Other Subdiv.             | 12.3%         | \$634,712          |
| Valelevu Health Centre    | 1.0%          | \$49,478           |
| Other health centres      | 9.9%          | \$510,152          |
| Nursing Stations          | 2.7%          | \$139,350          |
| Other Institutions        | 1.9%          | \$96,127           |
| <b>TOTAL</b>              | <b>100.0%</b> | <b>\$5,170,452</b> |

## APPENDIX D: LIST OF CONTACTS

### USAID/Regional Development Office/South Pacific

Dr. David Calder, Chief, Health Office  
Dr. Patrick Lowry, Health Officer  
Dr. Manoa Bale, Health Officer

### Ministry of Health

Dr. S.I. Varea, Permanent Secretary for Health  
Dr. P. Rika, Director of Hospital Services  
Dr. A. Rafai, Director of Preventive & Primary Health Services  
Dr. S. Govind, Assistant Director of Preventive & Primary Health Services  
Mr. Ami Chand, Principal Accountant  
Mr. Jagdish Singh, Accounts Office

### Colonial War Memorial Hospital

Dr. J. Taka, Medical Superintendent  
Mr. Akuila Turaganiqali, Accountant  
Mrs. Pal, Acting Superintendent, Radiography  
Dr. Joe Romano, General Outpatient Department  
Mr. Ose, Medical Records Office  
Mrs. Sharmila Devi, Laboratory  
Mrs. Elizabeth Dass, Dental Office

### Valelevu Health Center

Dr. Leweniqila, Subdivisional Medical officer, Suva Area  
Dr. Nyunt Khin, Medical Officer in Charge  
Sister Odro, Sister in Charge

### Lautoka Hospital

Dr. M. Sorokin, Medical Superintendent

Nadi District Hospital

Dr. Munif, Subdivisional Medical Officer  
Sister Kewal, Senior Sister in Charge

### Sigatoka Hospital

Dr. V. Matitoga, Subdivisional Medical Officer  
Sister E. Qereqeretabua, Senior Sister in Charge  
Dr. Zawmin, Medical Officer, UNDP Volunteer  
Mrs. Coral Kennedy, Board of Visitors

### Korolevu Health Center

Dr. Swe Tin, Medical Officer in Charge, UNDP Volunteer

### Government Pharmacy

Mr. Sam Dinati, Chief Pharmacist  
Mr. Abdul Azam, Senior Pharmacist  
Mr. Anil Chand, Financial Officer, Bulk Purchasing Scheme

### Ministry of Finance and Economic Planning

Mr. Taito Rigamoto, Permanent Secretary  
Mr. Rishi Ram, Deputy Secretary

### Central Planning Office

Mr. Sila Kotobalavu  
Mr. Timoci Rasovo  
Mr. Jitendra Manga

### Bureau of Statistics

Mrs. Vilimaina Naroba, Statistician

### Other Contacts

Dr. Jimi Samisoni, Head, Fiji School of Medicine  
Mr. Navi Naisoro, Private Consultant  
Dr. Nii-K Plange, Head, Department of Sociology, University of the South Pacific  
Dr. Deborah McFarland, Emory University School of Public Health



Mercy International Health Services

Glen Haydon  
Wesley McGavock  
Steven Siporin

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