Developing Integrated Rural Health Care Systems: An Evaluation of the Kadavu Rural Health Project in Fiji

Quality Assurance Series
No. 24 December 2000

AusAID
The Australian Government's Overseas Aid Program

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This report reflects the findings and views of the evaluation team. They do not necessarily reflect the views of AusAID or the Government of Fiji.

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List of acronyms

AHC	Australian High Commission
AMC	Australian Managing Contractor
ATL	Australian Team Leader
CWM	Colonial War Memorial Hospital (Suva)
EHW	Environmental Health Worker
FHMRP	Fiji Health Management Reform Project
FSP	Foundation for People of the South Pacific
FSM	Fiji School of Medicine
FSN	Fiji School of Nursing
GOA	Government of Australia
GOF	Government of Fiji
HIS	Health Information System
KRHP	Kadavu Rural Health Project
LBW	Low Birth Weight
MOF	Ministry of Finance
MOH	Ministry of Health (Fiji)
NCHP	National Centre for Health Promotion
NGO	Non-Government Organisation
PCC	Project Co-ordinating Committee
PCR	Project Completion Report
PDD	Project Design Document
PG	Partner Government
PHC	Primary Health Care
PICs	Pacific Island Countries
PID	Project Implementation Document
PPER	Post-Project Evaluation Report
PWD	Public Works Department
QAG	Quality Assurance Group
TAG	Technical Advisory Group
TBA	Traditional Birth Attendant
TCHP	Taveuni Community Health Project
ToR	Terms of Reference
VHW	Village Health Worker

Basic project data

July 1991	Request from MOH to Australian Embassy, Suva, for assistance with construction of a new hospital in Vunisea
October 1991	Pre-feasibility study conducted by Pacific Regional Team. Report issued December 1991
July/August 1992	Design mission
February 1994	Final PDD
March 1994	Tenders for implementation
June 1994	Project management contract signed
4 July 1994	Project launch
September 1994	First Project Co-ordination Committee meeting
December 1994	Project Implementation Document completed
February 1996	Mid Term Review field visit 10–15 February
October 1996	Vunisea Hospital and other sites officially opened
November 1996	Kadavu Provincial Council ratifies Provincial Health Committee members membership and functions
June 1997	Final PCC in Suva
	Project completed 30 June 1997

Executive summary

AusAID, in partnership with the Government of Fiji, implemented the Kadavu Rural Health Project (KRHP) from July 1994 to June 1997. The goal of the project was to develop an integrated approach to the rural health care delivery system for the Kadavu Medical Sub-Division of Fiji. The project consisted of four components:

1. to develop an integrated approach to the rural health care delivery system in Kadavu through community participation in health related activities;
2. to train MOH (Ministry of Health) staff and community personnel to provide the skills and knowledge to effectively manage the integrated health delivery system in the Kadavu Medical Sub-Division;
3. to provide adequate health care infrastructure, equipment and services to support the health care delivery system in the Kadavu Medical Sub-Division;
4. to efficiently and effectively manage the project to achieve set objectives within budget and within the agreed time frame.

Total project expenditure was A$7,314,673. The project was implemented by SAGRIC International in partnership with Alexander and Lloyd Architects and the Foundation for the Peoples of the South Pacific. The Ministry of Health was the Government of Fiji implementing agency.

A post-project evaluation was undertaken three months after project completion in September 1997 in order to advise both governments whether lessons learned from KRHP could be replicated on other islands of Fiji. The major findings of the post-project evaluation were:

1. an extensive improvement in health facilities and community public health infrastructure;
2. a network of trained Village Health Workers (VHW) and Village Environment Workers (VEW) had been established but the short project life did not allow time to consolidate project structures;
3. increased public awareness of health issues had occurred, and health had been given priority on the planning agendas at all levels;
4. planning could have been more gradual and participation more extensive;
5. the building and equipment provision may not have been appropriate for the level of service targeted and did not reflect adequate levels of community involvement, leading to recurrent cost implications for MOH.

An ex-post evaluation was commissioned in 2000 in order to document lessons learnt, with a particular focus on sustainability of project achievements and benefits, and transferability. The evaluation mission to Fiji was undertaken from 15–30 May 2000. The mission was curtailed due to political events in Fiji.

The major findings of the ex-post evaluation by component are:

1. *Community participation*. The project facilitated an engagement of the health system with district and village administrative and traditional structures. It also fostered a sense of self reliance and responsibility for health issues in many villages. These effects have been sustained since 1997. The impact at provincial level resulted in health assuming second place on the province's overall list of priorities, from a position of not being on the list at all. A small grants scheme developed through the project assisted communities to attract an additional $500,000 from a national Rural Development Scheme. These funds were used to upgrade sanitation, drainage and water supply, and to build dispensaries, fencing for animal control and model kitchens.

2. *Training*. The training program during implementation was particularly successful. At community level, the project combined a community development approach with the principles of adult education to formulate a 'community learning' approach called the 'Kadavu model'. Drawing upon the skills of the team leader/community development adviser and the trainer from the Foundation for the Peoples of the South Pacific (FSP — a Suva-based NGO engaged for this component), this community-based training approach was very effective. It specifically targeted *Ratu* (Chiefs), *Turaga ni koro* (Village Headmen) and VHWs. The training increased community participation in the health system and particularly raised awareness of and support for environmental health initiatives amongst community leaders.

   Training provided to Ministry of Health (MOH) staff in midwifery, public health, obstetrics and in the form of work placements at Colonial War Memorial Hospital in Suva resulted in upgraded skills and enthusiasm among staff trained. Some trainers trained through KRHP are now utilised in other parts of the Fiji Islands in the Healthy Islands training program. Efforts to train Public Works Department (PWD) staff in maintenance of hospital services did not succeed and resulted in subsequent maintenance problems.

   The review team's consultation indicated that lack of ongoing funding and insufficient emphasis on train the trainer activities have resulted in failure to maintain training activities post-project.

3. *Infrastructure.* The new hospital, new housing, refurbishment of nursing stations and health centres were, on the whole, appropriate and well constructed. They have significantly improved the health infrastructure on the island and been well received. In the case of the hospital, however, a largely political decision to build a 22 bed, 1200m^2 hospital has resulted in under-utilisation of the facility and some workflow problems. Lack of ongoing maintenance of the hospital, other health buildings and equipment is a major problem.

4. *Project management.* Project implementation performance was sound. The project was implemented on time according to the agreed schedule in the Project Implementation Document. The contractor performed well with a particularly strong team leader/community development adviser in the field.

The success and high profile of the project provided AusAID a basis on which to develop a health sector portfolio in Fiji, including the development of a similar project on Taveuni. A cost effectiveness analysis carried out as part of this evaluation concluded that both Australian and Government of Fiji expenditure on the project were cost effective compared to expenditure in similar health subdivisions elsewhere in Fiji.

There are multiple factors affecting sustainability of project activities. These include good project design, community participation, training of staff and community members, links with existing institutions and projects, and adequate recurrent financial resources. The project has been successful in sustaining an impressive level of community participation and in encouraging health expenditure by local government, which has been sustained at the Provincial level for the past two years. However, lack of MOH recurrent funding is the major constraint to adequate maintenance of physical infrastructure provided through the project, and to ongoing staff and community training activity, which would assist in maintaining the investment in human resources of the project. Lack of training, against an ongoing background of high staff turnover, results in a lack of skills and capacity within MOH and PWD to adequately maintain and operate buildings and equipment. Lack of ongoing training also threatens the high level of community participation. These problems are related to the failure of project design at that time to accurately estimate recurrent costs to the Partner Government (PG), both during and post-project, and failure of AusAID to negotiate the Government of Fiji's financial responsibilities both during and after the project.

The inability to institutionalise and sustain a training program is a result not only of lack of financial resources, but also insufficient train the trainer activity during the project and the fact that training resources are locked up in a highly

centralised MOH structure. Sustainability can also be enhanced through multiple institutional linkages, especially with local educational institutions such as the Fiji School of Medicine and the National Centre for Health Promotion.

Key lessons learned through the ex-post evaluation are:

- A greater involvement of key stakeholders, particularly health staff, PWD staff and community groups would have resulted in improved design and a more appropriate size of infrastructure facilities and a better initial understanding of administrative and traditional community structures in which the project would work.
- Detailed costing of PG financial, staffing, equipment and maintenance and training responsibilities, during and post-project, should have been estimated by a health economist and included in the PDD, negotiated with the GOF in the MOU, and incorporated into Ministry of Finance (MOF) and PWD budget allocations in order to avoid problems with inappropriate power generation, and to ensure continuation of activities after project completion.
- A phased contract, including a one year pre-project design phase, followed by a substantial three to four year implementation phase, would have been appropriate for a project with a community development focus. This approach would have allowed time for baseline studies during the design phase in order to inform design of infrastructure, implementation of activities, and provide a framework for monitoring of impact and effectiveness. It would also have allowed the PG more time to consider its recurrent cost implications and plan and budget for these costs.
- The provision of boats in the project should have been accompanied by clearly documented operational policies and maintenance instructions; appropriate staff training; funding for regular repairs and maintenance; and clear accountability procedures.
- Additional undesignated short term adviser inputs in the PDD and provision of an appropriate allocation of funds in the implementation of the project would have allowed a final visit by the architects prior to facility handover in order to identify and rectify any problems attributed to the design of the facilities. These inputs could also have been used for a final inspection of equipment by manufacturers prior to project completion, in order to assist with any maintenance issues and additional training in use of equipment.
- The job descriptions in project designs should reflect the qualities needed for both the task and the setting to ensure appropriate selection of personnel.

In this project, with only one long term adviser, much of the project's success was dependent on the suitability of the team leader/community development adviser.

- Choice of site for future health projects with infrastructure components should be guided by population health status, access, capacity to benefit and state of physical infrastructure.
- A sector wide approach may be appropriate in the future where projects in the health sector are closely linked. The link is particularly strong in AusAID's health projects in Fiji where the Fiji Health Management Reform Project aims to facilitate reform of the current over-centralised health system. The health sector Technical Advisory Group (TAG) for the three health projects in Fiji should contribute to improved co-ordination of activities.

In conclusion, the project made a major contribution to improving the rural health care delivery system in the Kadavu Medical Sub-Division of Fiji. It refocused health service activities to a greater emphasis on health promotion through increased community participation. The project still has high recognition in the Ministry of Health and amongst Kadavuans. This sort of rural health service enhancement in very isolated communities is and should continue to be a priority in Fiji.

The physical infrastructure component improved health facilities across the island, but raised issues relating to active management of an integrated community development/infrastructure project; the need for ongoing maintenance of buildings and equipment; and the need for greater involvement of non-health agencies, such as PWD. These provided valuable lessons for similar future projects which are documented in this report.

Whilst the primary care (sub-divisional) health system is strong — as evidenced by well trained and committed staff in peripheral clinics — the systems to support them and sustain the positive impacts of KRHP, such as training programs and infrastructure maintenance systems, require considerable strengthening. Resources required to enable training and outreach activities at the sub-divisional level are locked up centrally. Reform of the current over-centralised health system is thus necessary to ensure sustainability of sub-divisional level projects.

The primary health care or health promotion principles applied on Kadavu are robust and eminently transferable when combined with the practical lessons learnt from this and other projects. Already there have been lessons learnt from Kadavu and applied to the Taveuni Community Health Project. Should GOF wish

to pursue a policy of continuing rural health development, an iterative process of applying the principles of the Kadavu project, particularly the health promotion focus, would be helpful. There will need to be adaptation of the application to account for local differences, such as ethnic differences. These principles may also be able to be applied in other Pacific Island Countries.

1 Background

This chapter provides brief background information which includes an overview of the policy setting of the Kadavu Rural Health Project (KRHP), the objectives and implementation of the project and the aims of this evaluation. The project has already been well documented in design, implementation and review and the reader is directed to the documents listed in Appendix 3 for more detailed information.

1.1 Policy setting

During the early 1990s, Australia identified the health sector as a priority for the Australian aid program to Fiji. There was a clear commitment to health and rural health, in the outer islands of Fiji in particular, during the re-establishment of the Australian aid program to Fiji after the 1987 coups.

The Kadavu Rural Health Project was the first major aid project in the health sector after 1987. It developed out of a request from the Ministry of Health (MOH) in 1991 to build a new hospital at Vunisea on the island of Kadavu. The request for the new hospital was subsequently expanded to include not only a new hospital and other physical infrastructure, but also a community development approach which addressed community health issues, and met AusAID's policy objectives of strengthening existing GOF primary health care programs.

MOH staff confirm that the project was consistent with their policy, adopted in the early 1990s, of taking a more cost effective outreach approach to the provision of rural health services. This approach included improved transportation, communication and increased community involvement. Ministry staff also confirmed a continuing commitment to a primary preventive health care focus, rather than a curative one, and that KRHP was consistent with this policy. The prioritisation of rural health was maintained by the subsequent government at the commencement of this evaluation. As a result of subsequent political instability, however, the policy environment is less certain at the time of writing. Economic effects of the political situation will almost certainly limit expenditure in the public sector in the short term.

1.2 Formulation

A design team of four consultants drafted the Feasibility Report and Project Design Document (20 July to 7 August 1992.) Appraisal was carried out by a second group of four consultants, including a site visit. Implementation commenced in June 1994 and was completed in June 1997.

1.3 Objectives and scope at design

The project's goal was to develop an integrated approach to the rural health care delivery system for the Kadavu Medical Sub-Division of Fiji. The four components of the project and the main activities within each component were:

1. *To develop an integrated approach to the rural health care delivery system in Kadavu through community participation in health related activities*; activities included formation of village and provincial health committees, organising community meetings and workshops, promoting and funding community projects and delivering health education.

2. *To train MOH staff and community personnel to provide the skills and knowledge to effectively manage the integrated health delivery system in the Kadavu Medical Sub-Division*; activities included training needs assessment, organising workshops for community leaders, organising and funding post-graduate study for nurses and doctors and community-based training for Village Health Workers and Environmental Health workers.

3. *To provide adequate health care infrastructure, equipment and services to support the health care delivery system in the Kadavu Medical Sub-Division*; activities included construction of a new hospital at Vunisea, upgrading of the old hospital to become the Vunisea Health Centre, construction of new and refurbished accommodation and nursing stations, and provision of appropriate medical equipment and furniture.

4. *To efficiently and effectively manage the project to achieve set objectives within budget and within the agreed time frame.*

1.4 Implementation and review

The project was implemented by SAGRIC International, in partnership with Alexander and Lloyd Architects and the Foundation for the Peoples of the South Pacific (FSP). The Ministry of Health was the Government of Fiji implementing agency. The total expenditure of the project was reported in the Project Completion Report (PCR) as A$7,314,643 (for discussion of costs and financing see 2.1.3 and 2.4 below)

The main Australian inputs included specialist personnel, equipment, materials and training. The major outputs included a new 22 bed hospital, other new and refurbished clinic facilities, small scale rural water supply and sanitation improvements, training and enhanced capacity of MOH staff and an increased awareness of and involvement in health activities among the people of Kadavu.

KRHP has been reviewed at various stages of implementation. A Mid Term Review was undertaken in 1996. A post-project evaluation was undertaken three months after project completion in September 1997. This was to critically appraise the impact of the completed project in order to inform scheduled discussion of health sector pipeline activities at High Level Consultations (HLCs) later in 1997. Both governments sought recommendations on whether lessons learned from KRHP could be replicated on other islands of Fiji.

The post-project evaluation found, *inter alia*:

- An extensive improvement in health facilities and community public health infrastructure;
- A network of trained Village Health Workers and Village Environment Workers had been established but the short project life did not allow time to consolidate project structures;
- Increased public awareness of health issues had occurred, and health had been given priority on the planning agendas at all levels;
- Planning could have been more gradual and participation more extensive;
- The building and equipment provision may not have been appropriate for the level of service targeted and did not reflect adequate levels of community involvement, leading to recurrent cost implications for MOH.

Given that a full assessment was not feasible immediately post-project, it was recommended that an impact and effectiveness evaluation take place two to three years after project completion. This timing would enable the evaluation to assess project sustainability and inform the implementation of future projects, in particular the Taveuni Community Health Project (TCHP) and potentially similar health enhancement projects in Fiji and other Pacific Island Countries (PICs).

1.5 Ex-post evaluation

AusAID appointed a team consisting of two external consultants, one AusAID officer and one Ministry of Health employee (two men and two women) to undertake an ex-post evaluation in May 2000. A desk-top economic analysis was carried out by a consultant economist resident in Suva. The purpose of the evaluation was to assess the effectiveness of the project in meeting its objectives and the impact of project activities in contributing to the broad outcome of poverty alleviation. The evaluation specifically focussed on the following:

- the appropriateness of goal and purpose of the project in the context of Government of Fiji needs and priorities, AusAID's country strategy for Fiji and overall aid program objective;

- the appropriateness of the design and design process given the stated goal and objectives;
- the extent to which the activity achieved its stated goal and objectives;
- the outcomes and impact (both intended and unintended) of the project;
- the cost effectiveness of the project (economic analysis);
- project implementation performance;
- the sustainability of the benefits and project achievements; and
- the transferability of the principles underlying the project to other settings.

1.5.1 Methods

Quantitative and qualitative methods were utilised. Qualitative methods included review of relevant documentation, in depth interviews and focus groups. Quantitative methods included review of expenditure data, review of available morbidity and mortality data, review of health service utilisation data, cost-effectiveness analysis and cost benefit analysis. Detailed methodology is in the Issues Paper at Appendix 4 and at Appendix 5.

1.5.2 Limitations

Access to data was limited by political events in Fiji during the field mission. Data relating to morbidity and mortality in the sub-division, staff training and staff turnover were limited or not available on Kadavu and the team was not able to determine whether they were available centrally at MOH. Whilst MOH staff were helpful in providing expenditure and other financial data, the economic analysis was also interrupted and limited by these events. Epidemiological and health service utilisation data quality from Kadavu was variable.

Notwithstanding these limitations, the evaluation team is confident of the validity of the major findings documented in this report.

2 Project design and implementation performance

This chapter examines various aspects of project implementation performance. These include project design, project management, monitoring, financing and timeliness of implementation.

2.1 Design

The AusAID Quality Assurance Group (QAG) describes a template against which a project design can be measured for quality as follows:

1. Objectives should be clear, measurable, appropriate and realistic.
2. Project design should be developed using participatory planning techniques.
3. Clear documentation should be provided of Partner Government (PG) contributions including costs and timing.
4. Risk analysis and management plan should be clear and comprehensive
5. Sustainability analysis and strategy should address how the project will maximise sustainability of benefits.
6. Monitoring framework should be comprehensive and show how performance information will be provided against log frame indicators.
7. Design should include an explicit link to poverty reduction.
8. Project design should be suitable for contracting.

This section assesses the project against these indicators.

2.1.1 Quality of design objectives

Whilst the objectives of the project were clear and appropriate, their measurability was limited by lack of baseline data, adequate monitoring systems and the difficulties of measuring community participation and social change. The stated goal of the project was 'to develop an integrated rural health service for the sub-division' of Kadavu. This goal was probably unrealistic and never fully achievable by the project alone. The goals of such aid projects should be realistically set and achievable. In addition, there is little or no discussion in the available documents relating to the integration aspect of the goal. Other than facilitating community involvement, it is not clear whether this refers to

integration of different levels of the health system, or to integration of hospital and community health activities, or integration across sectors driven by community structures.

2.1.2 Quality of participatory planning techniques

A number of informants expressed the need for a longer design period in order to increase community input. This could also have entailed multiple specialist inputs in specific areas at different times during the design process.

The design had insufficient time for the community development component. Whilst the project worked 'down' well, to *Tikina* (District) level[1], there was insufficient time to work 'up'. The Provincial Health Committee was only established in the last six months of the project. Two key informants who worked on the project commented on the need for more time to consolidate the committee's activities.[2]

2.1.3 Clarity of proposed Partner Government contributions

Recurrent costs were considered in the planning for the project. The expected incremental rise in costs was F$64,576 which resulted in an expected post-project total expenditure of F$548,950 (see Appendix 11 for further detail). This total was reached in 1997. The total increase in expenditure was reasonably accurate. However, the component costs were quite different and bear little relationship to the components supplied by MOH for the years 1996–1999. This suggests that more attention needs to be placed on the forecasting of recurrent expenditures in the project planning process (see 2.4 below).

2.1.4 Quality of risk analysis

There was a rudimentary and incomplete listing of risks in the PDD with no risk management strategies. Stated risks included concerns over the ability of the GOF to meet its recurrent costs and other risks associated with equipment. An appropriate risk management strategy with associated monitoring framework would have put checks and balances in place to ensure GOF was sufficiently

1 The geographical taxonomy of administration in increasing population size is Village (n=74 on Kadavu), Tikina or District (n=9) and Province (n=1).

2 The evaluation team was also informed that the administration had previously been busy with the Constitutional reform process and that there were two hurricanes during the final six months of the project. With community development processes, there needs to be an allowance of time for unforeseen events which are necessarily prioritised by the community at the expense of the project.

involved in the infrastructure design to understand its recurrent cost and staffing implications, together with training needs of the staff operating equipment. An adequate risk management strategy may have facilitated greater effort to involve PWD in the design, construction and maintenance of infrastructure and equipment, including upgrading of the Vunisea power generator (see 3.3 and Appendix 8). An increased focus on the sustainability of the training program could also have resulted if the risks of not training any future trainers had been identified. A phased implementation approach (see 5.2) would also have allowed more time for thorough assessment of risks.

2.1.5 Quality of sustainability analysis

The sustainability analysis was poor. The PDD glosses over 'key issues' relating to sustainability. 'Key issues' included an increased number of personnel, improved levels of training, better access to services, community development, ongoing operation and maintenance of facilities, supplies and support and training for VHWs and EHWs. These are all critical issues but were left unanalysed and with no clear strategies describing how to address them. The evaluation found that all of these identified areas have significant problems with respect to sustainability.

2.1.6 Quality of monitoring framework

The monitoring and evaluation framework was unimpressive. There was lack of relevant baseline data against which to monitor. Some of the logframe indicators were unachievable by the project alone ('Improved health of the population of Kadavu'). Other indicators were obvious and relevant ('Construction of new and upgraded facilities'). Many were reasonable process indicators ('Successful establishment of committees in villages and at the provincial level'). Overall, in projects of this type, greater consideration needs to be given to a set of relevant indicators that relate to service utilisation, health outputs and outcomes, and baseline studies carried out as per the Taveuni Community Health Project (TCHP). Specific policy priorities of one or both governments, such as gender policy, need to be explicit in the project design and an appropriate evaluation strategy implemented (see 3.7 below). In relation to infrastructure development, well-developed baseline data on utilisation and health status, such as with TCHP, assist not only in ascertaining more accurately required hospital bed numbers, but in determining the sites for facilities and the appropriate scale of the buildings. The evaluation team were informed that the project design took place at a time when limited appraisal or peer review was in place and there was little consideration at that time of baseline surveys or participatory methods.

2.1.7 Link to poverty

There was no explicit link between project objectives and poverty reduction. The link is difficult to show in projects such as this. In so far as improved health services contribute to health outcomes, and a healthier population is a more productive one, the link between rural health enhancement projects such as this one and poverty alleviation may be assumed.

2.1.8 Suitability for contracting

The contract was a mix of an 'inputs' contract for the community development component and an 'outputs' contract for the infrastructure component. This was appropriate for this type of project: a mixture of 'process' activities and identifiable infrastructure outputs (also see 5.6).

2.2 Project management

The KRHP was completed on time. (For budget details see 2.4). Day-to-day response and action times were efficient and acceptable to AusAID.

The principal contractor, SAGRIC International, subcontracted the infrastructure component to Alexander and Lloyd architects. The construction contract was sub-contracted to Minson Fiji Ltd. SAGRIC also sub-contracted the training of community workers to the Foundation for the Peoples of the South Pacific (FSP).

These contractual arrangements appear to have worked well. The contracting architect was changed early in the project due to pressure of work. The second consultant from the contracted firm was well accepted by stakeholders. Minson suffered financial difficulties during the life of the project, but nevertheless undertook the construction work to an adequate standard.

The project relied on a particularly motivated ATL/community development specialist. He filled the only long term position and much of the project's success can be attributed to his activity (see 5.2).

A Project Co-ordinating Committee (PCC) was established and met six monthly. A Project Management Unit was included in the original project design. During project implementation, however, the ATL concluded that such a unit was 'unworkable'. Local representation in project management was therefore provided through the active Sub-Divisional Medical Officer (SDMO), the Board of Visitors of the Vunisea Hospital and the nine District Councils of Kadavu. This arrangement proved effective.

At the national level, GOF responsibility for the project was vested in MOH. On the ground, much of the decision-making and drive on the GOF side came from the then SDMO at Vunisea.

AusAID management of the project appears to have been sound.

Given various constraints discussed elsewhere in this report (2.1), these management arrangements appear to have been appropriate. The evaluation team considers that the project was implemented in a suitably efficient manner.

2.3 Performance monitoring

The performance of KRHP was monitored over the life of the project through monthly reports from the ATL to AusAID, Annual Plans, PCC meetings, visits by AusAID staff from the post and Canberra, and visits from the AMC Project Director. As already noted (2.1.6), no baseline data were established at project commencement in order to be able to monitor community health impacts. Routinely collected data is variable in quality and range (see Appendix 7, 3.4 and 3.5 below).

The Mid Term Review in 1996 had insufficient time to formulate recommendations which the AMC considered to be valid. The sector Technical Advisory Group (TAG) approach now adopted by AusAID should assist with this problem in the future.

2.4 Costs and financing

The budget in the PDD was estimated at A$6,760,000. The PID estimate was A$6,583,000, as a result of a re-negotiated unit cost of personnel. Activity cost estimates in the Memorandum of Understanding were A$6,764,000 — the Australian contribution — and F$67,000 as the contribution for 'salaries' from the Government of Fiji. Final total expenditure was reported in the PCR as A$7,314,673. This expenditure is further broken down in the following tables. There is not a clear documentation of the reasons for the difference in final expenditure and the MOU. Most of the difference relates to increased construction costs and the remainder is most likely due to the cost escalation clause in the contract. The final cost of the project was not considered problematic.

Table 1 KRHP Expenditure by project component

Component 1: Community development	A$350,000
Component 2: Human resource development	660,000
Component 3: Infrastructure and equipment	5,853,534
Component 4: Project management	451,139
Total	A$7,314,673

Table 2 KRHP Expenditure by category

Personnel	A$1,400,000
Procurement	5,063,848
Training	467,000
Other	383,825
ÏTotal	A$7,314,673

Whilst the infrastructure component dominated in terms of expenditure and to some degree in the perception of the project by the people of Kadavu ('the hospital project'), in the next chapter we explore the significant impact of the community development component. In particular, the small grants scheme was very successful (see 3.1) and worth a higher proportional allocation in future projects of this kind.

2.5 Implementation schedule

Implementation was timely given an overall short project duration. Minor but significant changes to the PDD implementation schedule relating to community development activities were proposed in the PID. These were valid changes which increased effectiveness of community-based training.

In retrospect, an implementation schedule involving a phased approach would have been more suitable for this project (see 5.2). This approach would have allowed sufficient time to undertake baseline studies and for the AMC to understand the community structure within which the project operated. Lack of this information at project commencement led to some delays in year one. It also resulted in pressure to complete small grants scheme activities and consolidate Provincial Health Committee processes at the end of the project.

3 Project impact and outcomes

This chapter assess the impacts and outcomes of the different components of the project and related policy issues.

3.1 Component 1: Community participation

The outputs of this component were:

- to raise the level of awareness in the community of health related issues;
- to further the development of community participation in the planning and delivery of village health delivery systems;
- to provide training and encourage specific community initiatives, such as environmental and educational projects; and
- to provide ongoing support to the continuation of community initiatives.

The first three of these outputs were met by the project. The last objective, which is related directly to sustainability, has been met to some extent (see 4.2). There was a high level of community participation during and immediately after implementation which has been documented in the PPER.

In this evaluation the community participation assessment tool used in the post-project evaluation was re-applied to five focus groups in four villages. Despite some methodological problems, this method confirmed other qualitative findings that significant levels of community participation in various health activities had been sustained since the end of the project (see Appendix 6 for a detailed description). Generally, the results suggest an overall growth in community participation compared to before the project, and a sustained level of community participation in the three years since the post-project evaluation.

Sustained community participation was variable but evident in a number of villages. In some locales, health committees continued to meet regularly and carry out environmental health inspections. There are different models of operation. For example, in one village the *Turaga ni koro* and VHW were active in monthly inspections of the physical environment and discussing health issues at regular village meetings, although the Village Health Committee *per se* was not active. Many committees still focus on environmental issues: sanitation, water supply, sea walls, footpaths and fencing (animal control).

Community participation was evident at different levels. At village level, there was a notable sense of self-reliance and responsibility for health issues in some villages. In one village, for example, the *Ratu* was adamant that the village would not rely on government funding. Whilst it is difficult to determine the contribution of the project to this attitude, our strong impression based on interviews with several key informants was that the project took good advantage of the strong chiefly system on Kadavu. As a result, the training targeted *Ratu*, *Turaga ni koro* and VHWs and facilitated a strong sense of ownership of issues relating to health.

In relation to the third objective, the small grants scheme resulted in expenditure of $150,000 over three years. This attracted a further $500,000 from the Government Rural Development Scheme. (This was said to be half of the total funds available nationally). Projects funded under this scheme are listed in Table 3. The PPER commented that as a result of the relatively late start of the small grants scheme, some people who expected to receive grants did not and this resulted in some significant community disappointment. This was not raised as an issue in the review team's consultations.

At provincial level, health has risen on the list of priority activities: from absence on the priority list to second position. As a manifestation of this prioritisation, the Provincial Council has for the past two years allocated $30,000 to health. In the first year this was used to purchase accommodation for relatives near the Vunisea Hospital. The duration of the project and lack of time to consolidate Provincial Health Committee processes (see 2.5) has affected achievement of the last objective of this component (see 4.2 and 5.3).

Table 3 KRHP Small grant scheme projects

Project type	No. of villages	Type of improvements
Sanitation	40	Water-seal toilet moulds provided to each district. 576 toilets constructed in villages and schools.
Water supply	39	Improved catchments, storage tanks and piped delivery to houses.
Dispensaries	36	Communal PHC facilities in villages. Basic equipment and medications. Working base for VHWs.
Animal control	8	Reduction in pigs, cattle and their associated pollution and insects within village and school boundaries.
Drainage low-lying	3	Reduced pooling of water and mosquito breeding in coastal villages.
Kitchens	1	Model kitchens constructed to illustrate basic building hygiene standards
Other projects	All 74 villages conducted small, unfunded projects	Village clean-up days and vector control efforts to reduce opportunities for the transmission of dengue fever and other vector-borne diseases.

Source: KRHP PPER p16

3.2 Component 2: Training

The outputs of this component were:

- training and enhanced capacity of MOH staff;
- development and implementation of maintenance procedures and guidelines; and
- training and enhanced capacity of community members, VHWs and VEWs.

The second of these outputs was not achieved and is discussed in the context of Component 3 (3.3 and Appendix 8). The other two outputs are examined in this section. There was no evidence of broader human resource development activities, such as workforce planning, as a result of KRHP.

3.2.1 MOH staff training

All Kadavu Sub-divisional MOH staff were involved in training activities. Four District Nurses obtained Midwifery Certificates and three obtained Public Health Certificates. Another four nurses completed placements at Colonial War Memorial Hospital (CWM) in Suva in different specialty areas. These were made possible by the employment of relief staff. The SDMO also received obstetric training. These staff returned to Kadavu, although many have since been transferred to other medical areas. There is some evidence which suggests an increase of women's utilisation of health services during the life of the project (see 3.7 and Appendix 7).

There were also efforts to train PWD staff in maintenance of hospital services. The PWD response was noted as 'less than satisfactory'. The reasons for this related to limited PWD resources; an ongoing lack of a feeling of ownership from PWD ('Minson's hospital'); the need for greater emphasis on the importance of PWD involvement at the pre-implementation negotiation (MOU) stage; and the policy environment at the time. There also wasn't an effective risk management strategy to mitigate against this scenario by encouraging more PWD involvement in the project at different levels.

Senior MOH officers indicated that the project had influenced MOH to place a greater emphasis on preventive and health promoting activities. One senior officer declared that MOH needs 'to focus on prevention. There is too much focus on hospitals'. He went on to state that the Fiji Health Management Reform Project (FHMRP) aims to integrate hospital and PHC and 'once it gets going this will be easier'. One Divisional Medical Officer engaged FSP to work within the 'Kadavu model' in an area where there was a high rate of medical evacuations.

3.2.2 Community level training

KRHP instituted a program of training later documented as the 'Kadavu model'. The distinctive feature of this in conceptual terms was the combination of a community development approach with the principles of adult education to formulate an approach the ATL has referred to as 'community learning'.[1] Training for VHWs changed in duration, content and location. Training was shorter, carried out in the community, and the content de-emphasised clinical activity in favour of health promotion, community development and appropriate referral.

Village Health Workers were trained as much as possible in or near their own workplace, with trainers working in the closest chiefly village or in the VHWs' villages. Environmental health education targeted *Turaga ni koro, Ratu* and VHWs. The four training manuals produced as a result of the experiential learning approach adopted are still readily available through the hospital and are widely evident. Insufficient train the trainer activity affected sustainability of these activities. This is discussed in 4.3.

The community training activities were facilitated by the team leader, the then SDMO and the Foundation for the Peoples of the South Pacific (FSP). One unintended impact was the benefit to the Suva-based NGO, FSP. One senior FSP staffer stated that the organisation had 'come out of the project more mature and confident in the implementation' of community development projects. FSP had then proceeded to apply the 'Kadavu model' in other locations and in other sectors, such as a schools project in the Sigatoka Valley. Another FSP staffer is now employed in an environmental project funded by the World Wildlife Fund on Kadavu, using skills acquired during KRHP.

Other unintended outcomes were that the FSP training officer was later elected as a member of parliament. The Chair of the Provincial Health Committee was elected to the Senate. Whilst attributability to the project is difficult to ascertain, there may well have been a contribution. Furthermore, these sorts of unintended outcomes sometimes prove to have a large impact at a later date.

The effects of this training were an improved (see 3.1 above) and sustained (see 4.2 below) understanding by, and involvement of, community structures in the health sector and a more confident cohort of VHWs that was noted in the PPER and is still in evidence. From a high of 55% in 1994, the proportion of total consultations seen by VHWs from 1995 to 1999 has remained constant at 30–40 percent (Appendix 7).

1 Roberts G 1997 The Kadavu health promotion model, Fiji. Health Promotion International 12:4 (283–290)

The 'community training' approach proved effective and has been applied in other settings not only by FSP, but also by MOH Environmental Health staff in other sub-divisional areas through the Healthy Islands program. Whilst the ATL was a main driver of the project, the absence of any local community development counterpart limited the devolution of community development and HRD project responsibilities to local staff. The transferability of the 'Kadavu Model' is discussed further in 4.7.

3.3 Component 3: Infrastructure, equipment and services

The outputs of this component included:

- construction of a new 22 bed hospital;
- renovation of the existing hospital to become the Vunisea Health Centre;
- construction of five staff houses;
- upgrading five nursing stations and two health centres;
- construction of one new nursing station; and
- provision of three boats and one four wheel drive vehicle.

These have provided Kadavu with a greatly improved health infrastructure compared to the situation pre-project and have been very well received by the people of Kadavu. New equipment was provided for all health facilities which has improved the standard of services.

The size of the new hospital was negotiated between AusAID and the GOF. The original intention of GOF was for a larger hospital. Whilst acknowledging the high profile of the hospital on the island and the political imperative to build a large hospital, the evaluation team concluded that the built size of the hospital could have been reduced further given current utilisation and cost implications.

The size of the new hospital is 1200m^2, compared to the old hospital at 620m^2. This has had an impact on the operational management and recurrent costs of the hospital. Despite increases in expenditure, staffing levels have not increased to operate and maintain the facility adequately. Bed occupancy has not risen above 30 per cent leading to under-utilisation of space and resulting in workflow problems.

To some extent, emphasis on the striking architectural design of the hospital has taken priority over the spatial planning, workflow requirements and cultural issues. As a result, there are a number of issues detailed in Appendix 8 relating to design and maintenance which strongly suggest the need for increased

community and staff participation in the hospital design process. Consultation can be a complex process and itself requires careful planning, appropriate methods and a clear timeframe (see 5.5).

There are also some very positive impacts of the new physical infrastructure. Increased consultation and storage space at nursing stations has been welcomed. The 'education room' of the refurbished Vunisea Health Centre has proved very useful for community education and meeting purposes.

Appendix 8 also details some significant engineering, maintenance and equipment issues. The major issues include:

The main Vunisea generator was not adequately upgraded as planned in the PDD. This was apparently due to lack of funds to meet this requirement by the PG. Failure to address agreed power infrastructure needs coupled with insufficient funds for the fuel to operate it on a 24-hour basis has had a major impact on the operation of the hospital and safety requirements.

The capacity of the 'essential power' generator at the hospital is inadequate (and was never intended) to provide full hospital power. It was designed to provide emergency power to certain areas such as the operating theatre. Essential power to operate the X-ray machine and birthing suite was not included in the hospital design.

Maintenance is generally carried out by a PWD team from Suva. This is expensive, time consuming and results in long waiting periods for repairs. One health centre visited by the team had no power, no generator and solar panels which were not working. Night consultations, including births, were carried out by torchlight. This situation is a result of lack of knowledge about the operation of the solar lighting and maintenance of the storage batteries. No maintenance person has been appointed to the hospital staff, nor has there been any asset management training for nurses or other personnel.

The outcome of the provision of boats has been less than successful. Only one of the three boats provided was in operation during the field visit. One was requiring repair and the other had been reported lost in cyclonic weather. Although the provision of boats in this project was problematic, without adequate transport outreach visits and access were significantly curtailed. The sub-division consists of islands with a rugged interior, small isolated communities dotted around the shoreline and no public transport. Health service transport is a vital access issue. Future project design needs to address the formulation of operational policy and procedures for maintaining boats and other vehicles, as well as sufficiently rigorous accountability measures (see 5.5).

The project procured equipment specified in the PDD on time and within budget. Most equipment was suitable, but provision of appropriate equipment is not effective without staff having a thorough knowledge of the manufacturer's specifications and operational manuals which are easily understood (see 3.2). Insufficient funds, lack of suitably trained personnel and no operational manuals have been constraints to maintenance of equipment on Kadavu.

3.4 Health status

One of the stated performance indicators of the project overall was improved health of the population of Kadavu (see 2.1.6). There has been no measurable impact on health status (see Appendix 7). This is not unexpected and can be explained by a number of factors: lack of appropriate baseline data, short timeframe and the limited contribution which health services make to health outcomes, given the importance of socio-economic and educational determinants of health.

The data in Appendix 7 indicate some variability in Crude Birth Rate (CBR) and Crude Death Rate (CDR) over time, especially CBR, but with no particular trend or discernible impact of KRHP. Maternal mortality has been targeted by MOH nationally and there has been no maternal death reported from Kadavu since 1996.

In the table in Appendix 7 are extracted data relating to diarrhoeal disease, respiratory infection, malnutrition, diabetes, hypertension and cardiac disease. The improvements in water supply and sanitation would be expected to have an effect on rates of diarrhoeal disease. Examination of the extracted data shows no discernible trend over time related to the first three diseases.

The clinic-based prevalence of hypertension rose steadily from 1994 to 1996. It then declined again in subsequent years. Whilst a similar pattern is not discernible with the clinic-based prevalence of diabetes and reliability of the measurements is not assured, this trend may show the effect of an enhanced service in detecting new cases of hypertension during the life of the project.

3.5 Health service utilisation

Inappropriate utilisation of the health system throughout Fiji is a common problem. Community health education, appropriate VHW training, improved peripheral infrastructure and outreach clinics are all potentially effective strategies to ensure appropriate utilisation patterns.

Overall utilisation of both hospital and peripheral facilities on Kadavu shows an upward trend (Appendix 7). From 1994 to 1999 hospital admissions rose from 466 to 854 and outpatient attendances from 13,606 to 20,274 per annum with no significant total population growth. Utilisation data related to women's health is discussed in 3.7.

In relation to appropriate referral patterns, there is little evidence of change effected by KRHP. Whilst a certain number of self-referrals to Suva from the northern part of the island are inevitable because of the difficulties with access to the sub-divisional hospital at Vunisea, bypassing of peripheral facilities is anecdotally not common. The current SDMO stated that most unreferred patients seen at Vunisea Hospital were from Tavuki district (which is relatively close to Vunisea). The number of referrals to CWM in Suva are small — totaling 15 in 1999. Referrals to CWM were 45 in 1993 and 30 in 1994.

It was not possible to obtain data from Suva relating to unreferred presentations from Kadavu. In the absence of these data and baseline data, and given difficulties with transport on the island and increasing utilisation over the past five to six years, it is doubtful that bypassing is a significant problem other than for those from the northern part of the island.

3.6 Economic analysis and poverty alleviation

No detailed financial or economic assessment was undertaken at design stage. The lack of baseline data at project commencement precluded monitoring or reliable measurement of changes in health indicators by the evaluation team. Thus the economic analysis involves assumptions based on the best available, albeit limited qualitative and quantitative data.

There was short-term economic impact in the provision of employment during the construction of the hospital and peripheral health facilities. There was some on the job training in carpentry, for example. While the training was not sustained after the project, it is likely that the improved skills raised the productivity of the trainees over a longer period. However, with completion of construction there was anecdotal evidence that the lack of gainful employment of those previously employed resulted in some negative social impact.

The project's health impacts, while not quantified, can be expected to have an impact on the economy of Kadavu. Better health is closely associated with higher productivity. In Kadavu this would particularly mean more labour available for higher output of both subsistence and cash crops, resulting in better nutrition and incomes.

No baseline poverty data was collected or found from secondary sources. While it might be expected that poverty is not an issue on islands of Fiji such as Kadavu, there are significant inequalities. The project can be expected to improve poverty outcomes because it is typically the poorest (such as female-headed households) who suffer the worst health and lowest productivity. Ill health often limits the ability of the poor to undertake paid and subsistence work. Malnutrition in schoolchildren is also associated with lower educational achievement, which is related to poorer health outcomes.

The cost effectiveness analysis at Appendix 9 concludes that both the AusAID project expenditures and the Fiji Ministry of Health's Kadavu expenditures were cost effective compared to similar health subdivisions elsewhere in Fiji. Therefore the cost effectiveness analysis supports the original decision to undertake the project and the level of resources committed to its outcomes. However, this conclusion should be considered in the context of a lack of high quality data for cost effectiveness analysis.

The hypothetical cost benefit analysis at Appendix 10, which is based on Kadavu but again limited by data quality, shows that potentially large net benefits can result from health projects in remote areas such as this. These analyses demonstrate the potential usefulness of rigorous economic analysis in projects such as this (see 5.2).

3.7 Gender and development

At the time of project design and implementation, AusAID's Women in Development policy stated that attention should be paid to the effect of Australian aid on women in developing countries. It also noted that women's activities and needs should be considered in planning and implementing the aid program, and women should share equally with men in the benefits arising from aid. Since then, the policy has been broadened to include active participation of both men and women.

Whilst no project objective specifically targeted women's health, the PDD noted that one of the most critical gender specific issues was equity of access to health resources and facilities for men, women and children. There were gender relevant project outputs relating to both infrastructure (e.g. birthing rooms) and postgraduate nursing training, such as midwifery (see 3.2.1). Anecdotally, one sister noted that the project's addition of a birthing room to the old nursing station in the village increased women's access to obstetric facilities. There is some evidence which suggests increased women's health activity — uptake of antenatal care and contraception use — during the life of the project, which was not sustained after the project (see Appendix 7).

Other factors play a significant role with respect to some of these indicators. A decreasing proportion of births managed by traditional birth attendants (TBAs) and an increasing proportion of births in health facilities reflects MOH policy. Variable numbers of Pap smears per year is dependent on the small number of practitioners carrying out this procedure.[2] Impact related to gender can only be measured if appropriate indicators are established at the commencement of projects and reliably monitored at appropriate periods.

The chiefly system is a dominant feature of island life. Village and *Tikina* political systems are led by men. The *Soqo Soqo Vakamarama* (Fijian Women's Society) only appears to have been active in some villages on Kadavu during the project. Most women reported that where their VHWs and Village Health Committees were functioning well, women were represented in equal or greater numbers than men, and had a voice on the committee. This in turn led to input into village decisions on health matters. In keeping with village traditions, they did not, however, chair these committees with the exception of one woman whom the team met. She was elected chair of her *Tikina* Health Committee.

In terms of overall impact on both women and men, and subsequent changes in behaviour, many village women interviewed confirmed that the community development component of the project had 'helped all families upgrade their standard of living through cleaning up their surroundings and the provision, in some cases, of flush toilets'. *Turaga ni koro* had benefited from the environmental training which had encouraged them to work towards a cleaner village environment in cooperation with female VHWs.

Moreover, the PCR reported that sensitivity to gender segregation issues in training early in the project was probably overestimated. VHW training, traditionally a women's province, was extended to men. The VHW training was conducted before EHW training. The female VHWs were then involved in EHW training and able to contribute their health knowledge, which was then evident to the whole community.

3.8 Environmental

Sanitation and water supply were well addressed within the project. From the 127 small grants projects funded, 576 toilets were constructed in 40 villages and water supply was improved in 39 villages. The team had a strong impression of the ongoing priority accorded to environmental health (Appendix 8). Despite

2 The alarmingly low rate of Pap smears reflects the fact that only doctors and nurse practitioners carry out Pap smears. In addition, most doctors are male and this discourages many women from seeking Pap smears.

these impressive statistics, there was no evident improvement in clinic presentations with diarrhoea (Appendix 7). This may be explained by data quality issues or other determinants of disease such as those relating to food preparation.

Health facility construction took adequate measures to protect the environment, making every attempt to reduce the risk of pollution or erosion during construction. Mosquito proofing was provided in all facilities built or upgraded during the project. However, further training in the prevention of mosquito-borne diseases in relation to water tanks and other breeding sites was not provided. The provision of an incinerator at the Vunisea Hospital for clinical waste was well received. However, the chimney is not high enough and allows smoke to penetrate the buildings. Procedures were in place in health facilities for safe disposal of 'sharps'.

4 Sustainability and transferability

Assessment of sustainability and exploration of issues around sustainability are central to this evaluation. The AusAID Quality Assurance Group concluded that few of the projects they have assessed gave adequate attention to sustainability of project outcomes. The major factors identified were lack of attention to future recurrent budget (including for operating and then replacing project assets), inadequate training of staff and insufficient participation by local people, including beneficiaries. These conclusions are supported by this evaluation.

Six key areas relating to sustainability are analysed below. These are project design, structures for community participation, training, maintenance of physical facilities, financial sustainability and links to other health sector aid projects.

4.1 Project design

The importance of appropriate, high quality project design has been discussed in section 2.1. Project design should explicitly explore strategies for sustainability, not just list factors which will influence sustainability. Particular features of project design which contribute to sustainability include:

- strategies for increasing and maintaining community participation;
- appropriate specialist inputs of appropriate duration into design to ensure high quality design;
- appropriate duration of design period and implementation period;
- baseline studies which identify community priorities, community preferences and areas of greatest need. These studies not only provide baseline data for future monitoring and ensure appropriate siting of new health facilities, they increase the chances of successful project implementation, which contributes to sustainability; and
- accurate and detailed costing of recurrent costs to PG, both during and post-project.

4.2 Community participation

The 1997 PPER listed a number of achievements in activities within Component 1 of the project. This evaluation found evidence of continuing, albeit variable, community participation in the health system. This success is a result of successfully tapping into existing community structures.

The former SDMO indicated that he had spent considerable time identifying institutional strengths in villages and settlements upon which he could build training and health development activities. The most appropriate group might be the local farmers' group, youth group, women's group or church. It would be useful for baseline studies to do this at design stage.

One key informant described three 'platforms' for community engagement: the traditional (chiefly) system, the government system and the church. Just as *Ratu* and all health staff were involved in training, church involvement could have been greater. The Methodist Superintendent at Tavuki attended an entire course, but involvement of other clerics in training was very limited. If more actively mobilised, Methodist ministers and the infrastructure of the church could have been employed to raise health issues, raise cash and play a greater leadership role in promoting health issues. The PPER noted also that youth could have been more engaged. More specifically, schools could have been utilised to a greater extent for health promotion.

Ongoing participation relies on an ongoing training program and funding of these processes. The PCR identified the need for follow-up support for the Provincial Health Committee and Provincial Office, but offered no indication what this might be or how it would be implemented. One *Ratu* suggested that the Provincial Health Committee allocation for health (F$30,000) be used to bring *Tikina* health committees together. This would be a good use of community funds allocated to health.

4.3 Training

The PCR proposed the following strategies to ensure sustainability: 'ongoing training' and 'utilising the four manuals developed [which should be] incorporated into Ministry of Health (MOH) staff development activity, together with utilising work experience placements and clinical attachments'. The PPER documents the busy training schedule of the project and the commitment of FSP to continue VHW training and assist *Tikina* and Provincial Health Committees. However, Component 2 activities have not been sustained. While the manuals were evident during our site visits, there is no institutionalised program of ongoing training which reflects the considerable activity during the project.

The PCR notes that although the project budget allowed for the facilitation of extensive training courses, 'the scale of the operation was unsustainable for the MOH staff that would be left behind with the MOH budget'. This limitation was confirmed by current and former senior staff. The evaluation team was informed that training was limited by the cost of bringing staff together and by the fact

that the turnover of staff decreased the impetus to develop training programs. The funding of a reliever during the project enabled nursing staff to be released for post-graduate training in Suva.

In the last few months of the project the ATL decided to scale down activities to a level which may be 'more affordable and consistent with traditional arrangements'. The former SDMO indicated that in practice post-project activities were concentrated in Tavuki District close to Vunisea because of budget limitations. Sustainability of post-project activities was most evident in this district.

Sustainability of training requires greater emphasis on 'training the trainer'. Some trainers trained through KRHP are now working in other parts of Fiji in the Healthy Islands training program. Several informants, including KRHP staff, referred to the need for more train the trainer activity. A greater emphasis on this would have resulted in a greater residual capacity of both MOH staff and community members to sustain a training program.

Sustainability can also be enhanced through multiple institutional linkages, especially with local educational institutions. For example, FSM is negotiating with MOH and TCHP about distance education and the possibility of on site teaching staff. The Western Pacific Health Net — a telehealth network — is already active and a proof of concept trial is planned for 2000. FSM may not have been at an appropriate stage of its own development at the time of KRHP to be more involved at that time. The National Centre for Health Promotion (NCHP) produced the KRHP training manuals. It is a key local institution with expertise in social marketing, research and community development. NCHP can support local health promotion activities should they be appropriately resourced.

4.4 Maintenance of physical facilities and equipment

The PCR anticipated that maintenance of physical infrastructure and equipment in the post-project phase would be carried out by the PWD and the biomedical engineering unit of the CWM respectively. The PPER listed a range of infrastructure problems, a number of which have been remedied.

However, the lack of adequate repairs and maintenance capacity threatens the considerable investment into the improvement of health infrastructure on the island. Operation and maintenance of facilities is difficult without an adequate commitment of personnel and funds. In addition, optimal utilisation of the hospital facility is limited by failure of GOF to fund upgrading of the power generator in Vunisea.

The ‘maintenance’ manuals found at the hospital, such as the electrical services manual, contained predominantly product information, although one particular manual reviewed by the team did contain an annual maintenance checklist for all electrical work. However, without local maintenance staff trained to understand the document, without a standard equipment policy, without a MOH policy to develop a specific maintenance training program for staff and without a routine maintenance program for facilities and equipment, the sustainability of physical facilities is difficult.

In addition, certain design features, such as very high structures not amenable to cleaning, have exacerbated the general maintenance requirements of the Vunisea Hospital. This emphasises the importance of simple building design which takes local environmental conditions into account.

Asset management, repairs and maintenance and forward capital works planning are all key issues to be addressed by the Fiji Health Management Reform Project (FHMRP). These are systemic problems not confined to Kadavu which need to be addressed at a national level in order to devolve responsibility and resources closer to the daily realities of service provision.

4.5 Financial sustainability

Actual project costs are documented in 2.4. Transport, training, repairs and maintenance were all identified by staff as problem areas in relation to lack of recurrent funds. The qualitative data is clear that historical budgeting has been and continues to be inadequate to maintain the physical and skills assets on Kadavu.

Expenditure analysis shows that the Kadavu Rural Health Project did not result in a large increase in recurrent funding (compared with other subdivisions) and the Ministry of Health has continued to meet the recurrent sub-divisional financing costs after the project was completed in 1997 (see Appendix 11). This is primarily due to a very flexible approach to MOF budgeted expenditure allocations.[1] The project was also successful in encouraging health expenditure by local government, which has been sustained at the Provincial level for the past two years. However, greater maintenance spending is required to more fully protect the benefits of the project investment and a higher level of staff and community training activity would assist to maintain the investment in human resources of the project. [2]

1 The Ministry of Finance sets detailed MOH expenditure limits, which are not strictly enforced. There is provision for a surcharge on gross over-expenditure, but this is rarely applied.

2 The predicted additional expenditure in the PDD and actual costs whilst similar in quantum, varied considerably in components. This suggests that to sustain this type of project, more attention needs to be placed on forecasting recurrent expenditure in the project planning process.

4.6 Links with other projects

There are key links with FHMRP and the FSM Post-Graduate Project. Whilst the primary care (sub-divisional) health system is strong — as evidenced by well trained and committed staff in peripheral clinics — the systems to support them, such as training programs and infrastructure maintenance systems, require considerable strengthening. Significant resources required to enable training and outreach activities at the sub-divisional level are locked up centrally. Reform of the current over-centralised health system – an objective of FHMRP — is thus necessary to ensure sustainability of sub-divisional level projects. Training activities would also benefit with stronger links into training institutions such as FSM and NCHP (see 4.3).

4.7 Transferability

The PHC or health promotion principles applied on Kadavu are eminently transferable when combined with the practical lessons learnt from this and other projects. MOH Environmental Health staff are applying some of the principles of 'community training' used on Kadavu in other sub-divisional areas within the Healthy Islands training program, which they have extended to include 'healthy schools', 'healthy towns' and 'healthy market places'. There have also been lessons learnt from Kadavu and applied to the Taveuni Community Health Project. Two major developments have been a longer project implementation cycle — five years instead of three — and the emphasis on measurement of baseline indicators, thus allowing monitoring and evaluation of project activities and outcomes.

Should GOF wish to pursue a policy of continuing rural health development, then an iterative process of applying the principles of the Kadavu project, particularly the health promotion focus, could be helpful. The cultural homogeneity of Kadavu simplifies the implementation of this type of project. This is not encountered to the same extent in other parts of the Fiji Islands. There needs to be adaptation of the application to account for local differences, such as ethnic differences. These principles may also be able to be applied in other PICs.

A number of informants commented on the use of the term 'Kadavu model'. Whilst not wishing to detract from the successes of KRHP, there was concern about the transferability of a tested community development approach with the geographical label of 'Kadavu model' to other sub-divisions. The 'model' itself is of academic interest. In practical application the 'community training' concept is a sound one which draws upon well established principles of community development, health promotion and adult learning. It may be better framed in more generic terms to avoid the barrier highlighted in the review team's consultation.

5 Lessons learned and conclusion

The final chapter reviews lessons learned through the evaluation, offers a conclusion and suggested follow-up actions.

5.1 Location

Different explanations were offered for the choice of project site. A project of this kind is more easily implemented on a discrete island sub-division like Kadavu. The predominance of one ethnic group simplifies some of the mechanisms of community engagement. Kadavuans have considerable political influence in Fiji. The team was also informed that the old hospital in Vunisea was the oldest hospital requiring replacement or refurbishment in Fiji. Choice of site will always have a political element. Ideally, for future projects, an assessment of need which includes health status, access and state of physical infrastructure will guide choice. Likelihood of success (capacity to benefit) should also be considered (see Appendix 12 for a list of suggested criteria). Planning processes defined through FHMRP should inform the prioritisation process.

5.2 Design

A longer duration of the design would have facilitated greater community participation and ensured good quality, appropriate project design. Baseline studies are logically part of the design process.

Appropriate design also requires an appropriate design team. This will vary from project to project, but the inclusion of a social scientist, health economist, health services researcher and architect should be considered in projects of this type. Inputs may be brief and staggered over a period of time. Specifically, it is recommended that future projects of this kind include a rigorous economic analysis, within an evaluation framework which necessitates adequate data collection commencing at design stage. In consideration of the importance also of the relationship between the ATL, project team and AusAID, AusAID participation in the design mission should be considered.

The project was fortunate to have recruited someone who was able to live for an extended period in relatively basic circumstances and take to his task with enthusiasm as well as the requisite public health and training qualifications. The ATL displayed great self-sufficiency and a remarkable empathy for the people with whom he worked. This contributed in no small part to the outcomes of the project. The duty statement in the PDD describes the technical skills and

qualifications required, but not these other particular attributes. Future job descriptions could better reflect qualities appropriate for the task and setting, and interviews at AMC selection time should focus on confirming the suitability of the proposed ATL for the project.

Appropriate design and contracting of community development/physical infrastructure projects such as this was an issue raised repeatedly in the evaluation, particularly by AusAID officers. This is discussed in 5.6 below.

AusAID and PGs need to consider options for increased project flexibility. Within a project approach, a phased approach may be more appropriate. The AusAID QAG reviewed several projects with phased implementation. In each case this appeared to be a significant success factor. Phasing of projects was adopted in response to inadequate baseline data or uncertainty about local policy, capacity or commitment. Long preparation or a pilot/demonstration phase approach appeared to be particularly important for institutional strengthening projects. This enabled a better assessment of risk prior to commitment of substantial resources.

A one year pre-project/design phase, which includes small scale activities, would be followed by a detailed appraisal by both governments and then a further substantial implementation phase. Other options, such as a move towards a program approach to sector funding, should also be considered. A sector-wide approach may be more appropriate where different 'project' objectives are dependent or closely linked. This would need to be considered in the context of country sectoral policies and the development of appropriate monitoring systems.

The evaluation team acknowledges that some of these lessons have been accommodated by AusAID in the period since 1994 when the PDD was completed.

5.3 Community participation

KRHP facilitated a successful engagement of the health system with district and village administrative, as well as traditional structures. This occurred largely as a result of targeted community and MOH staff training activities. This is a valuable lesson for similar projects. Ongoing participation will depend on identification of and engagement with existing community structures, the institutionalisation of a program of training and greater engagement with NGOs, church and schools. Of particular note was the success of the small grants scheme. The proportion of funds allocated to this should be increased in any future projects.

5.4 Training

Protection of project investment in staff, communities and infrastructure can be no better ensured than through an ongoing training program. Training needs to be available for different professional groups and across different content areas, including equipment maintenance. The main barriers to sustained training were lack of recurrent funds — the availability of nursing relief was especially noted — and insufficient train the trainer activity. Both issues need to be squarely addressed in future project design and costings.

5.5 Infrastructure

Baseline studies assist with an understanding of cultural requirements which inform 'design considerations' and assist in the determination of appropriate sites. Baseline studies can also inform service planning which impacts on infrastructure. For example, plans to include birthing rooms in nursing stations on Taveuni were abandoned when the baseline projections showed that birthing activity would overwhelm the human resources available at nursing station level. Baseline studies can also provide an idea of current and predicted need and thus inform the decision-making process relating to the appropriate size of specific facilities.

Appropriate consultation about infrastructure design during implementation avoids design mistakes and increases the sense of staff and community ownership. Appropriate community consultation requires careful planning and involves consideration of available data, draft designs and building of models or other appropriate forms of presentation prior to discussion with staff and consumers. Consultation also requires a clear timeframe and final decision-making responsibility.

Rather than designing them anew with each project, the evaluation team recommends the development of standard housing and health facility design templates. These could then be adapted to different locales. These templates could be negotiated and agreed by MOH and PWD, which would engender ownership. A standard equipment list for sub-divisional hospitals and peripheral facilities which specifies the best, most appropriate equipment would complement these templates. Operational manuals could also be written. This need only be carried out once by a health equipment specialist working with the CWM biomedical engineering unit, and then updated periodically. These concepts fit well into an overall resource allocation process which defines human and physical resources for given populations as per FHMRP.

Post-construction issues included maintenance, training, facility and equipment expert review and contingency planning. Ideally, a PWD officer would have

been involved from project design stage through implementation, with the view to continuing as a local maintenance person after completion. This should have been a greater emphasis placed on PWD involvement at MOU stage and ongoing commitment actively sought at multiple levels within PWD. Periodic training relating to essential equipment should also be a requirement for hospital staff.

Issues outside the health sector, such as failure to upgrade power generation in Vunisea, need to be prevented with a greater emphasis on the negotiation of the PG contribution prior to full project implementation (see 5.7 below).

Design flexibility, including undesignated Short Term Adviser inputs, could allow for a post-construction visit from the architects in order to enable them to identify any design problems which could be rectified. It would also give them the opportunity to incorporate lessons learned from the current project into future projects.

In this project, an additional A$50,000 was allocated in financial year 1999–2000 to improve some aspects of the Australian funded work at Vunisea Hospital, some nursing stations and staff houses. Provision of contingency funding in the PDD budget would allow problems identified during the life of the project or during the final visit of the architects to be remedied.

Likewise, provision should be made in the PDD for an inspection of equipment by manufacturers prior to project completion in order to assist with any maintenance issues, training and use of the equipment.

In remote areas such as Kadavu, transport is a critical issue and a major factor affecting health service access. The sorts of problems documented with boats purchased through this project (3.3) could be prevented with (1) clearly documented operational policies, (2) documentation of procedures for maintaining boats, (3) appropriate staff training, (4) funding for regular repairs and maintenance and (5) clear accountability. Outsourcing or contracting private boat operators is an alternative for remote areas on islands such as Kadavu.

5.6 Project management

The project highlighted the need to clarify every aspect of the Memorandum of Understanding (MOU) between governments, including the interpretation of clauses within the MOU. For example, the issue of responsibility for, and costs incurred in the transport of materials and equipment required greater clarity. The problem with power generation upgrade has already been discussed. Either AusAID should build an estimate of these costs into projects with remote area infrastructure components, or the PG should be required to establish a realistic budget prior to the project's commencement (see 5.7).

Community development/physical infrastructure projects are characterised by the broad range and mix of project personnel skills required. This raises a number of questions which include: to what extent should an ATL with community development skills be involved in the infrastructure component? Should these components be separately contracted? To the latter question a group of senior MOH staff responded unequivocally that integration rather than separate contracts was the appropriate approach.

There are clear and close links between these components. These include baseline studies which inform both project components; the need for staff consultation; and definition of the appropriate mix of services to be provided and how they are best provided. Moreover, the development of physical infrastructure is not merely a technical exercise, rather it should be driven by careful assessment of the health needs of the population and directed by the results of the community development component of such a project.

This will require active project management and the development of a strong relationship and understanding between infrastructure specialists, such as architects and civil engineers, and other project and MOH staff. It may also require formalisation within the project management structure. This may take the form of a building project committee which reports to the PCC and includes key local stakeholders such as the ATL, local MOH staff, architects and project director.

5.7 Recurrent costs

The additional recurrent costs to be met by the PG are a constraint on sustainability of activities arising from projects such as this. Future projects need to firstly perform a rigorous estimation of projected costs at design phase. This may require the short term input of an economist or health economist. Secondly, these recurrent costs should be carefully considered by the PG and negotiated with GOA if necessary, prior to the signing of an MOU. The MOU should accurately reflect these additional costs which must be met by the PG. A phased approach suits this scenario. Lastly, FHMRP should build the capacity of MOH to more effectively plan and budget.

Where the PG has demonstrated a persistent inability to fund necessary maintenance and training, consideration should be given to AusAID funding some recurrent costs for a transition period after the project would normally cease. This could be achieved by means such as the inclusion of a warranty or maintenance component in the project construction contract.

5.8 Conclusion

In conclusion, the project made a major contribution to improving the rural health care delivery system in the Kadavu Medical Sub-Division of Fiji. It refocused health service activities to a greater emphasis on health promotion through increased community participation. The project still has high recognition in the Ministry of Health and amongst Kadavuans. This sort of rural health service enhancement in very isolated communities is and should continue to be a priority in Fiji.

The physical infrastructure component improved health facilities across the island, but raised issues relating to active management of an integrated community development/infrastructure project; the need for ongoing maintenance of buildings and equipment; and the need for greater involvement of non-health agencies, such as PWD. These provided valuable lessons for similar future projects.

Whilst the primary care (sub-divisional) health system is strong — as evidenced by well trained and committed staff in peripheral clinics — the systems to support them and sustain the positive impacts of KRHP, such as training programs and infrastructure maintenance systems, require considerable strengthening. Resources required to enable training and outreach activities at the sub-divisional level are locked up centrally. Reform of the current over-centralised health system is thus necessary to ensure sustainability of sub-divisional level projects.

5.9 Follow up action

The evaluation team appreciates that many of the issues raised are linked to amelioration of health system problems related to both policy and operations. The team also recognises the limitations related to the current political and economic situation. However, some follow up action to protect the investment and gains made by the people of Kadavu through the KRHP should be feasible pending national health system reforms. These include:

- the appointment of an MOH maintenance person at Vunisea hospital with a brief to visit peripheral facilities would protect the investment in physical infrastructure and equipment.;
- MOH, PWD and MOF should consider meeting to negotiate the upgrading of the generator at Vunisea and ensuring ongoing fuel supplies for the generator;

- the allocation by the Provincial Council to the Provincial Health Committee would be well used for organising Tikina Health Committee meetings;
- the Provincial Health Committee could also consider working with MOH to develop an ongoing training program, particularly for VHWs, VEWs and community members; and
- the very low rate of Pap smears should be addressed through judicious posting of female doctors and nurse practitioners, and consideration of training staff nurses and sisters in remote areas in this straightforward procedure.

5.10 Feedback

Seminars were held in Suva at the MOH senior managers meeting on 20 December 2000, and at Vunisea Hospital with MOH senior sub-divisional staff. Direct feedback was generally well received and stimulated considerable discussion.

The Suva seminar was attended by the Minister for Health, the Permanent Secretary, senior managers, project staff from KRHP and FHMRP, NGOs and local AusAID staff. Presentations were made by the AusAID post, the Ministry of Health team member, the health economist and the team leader.

There was considerable enthusiastic and far-ranging discussion following the presentation. The main issues raised by discussants included:

- the importance of community participation in and community 'ownership' of health initiatives;
- the relationship between MOH and NGOs — a partnership approach — and the use of local NGOs in training activities;
- the National Centre for Health Promotion training activities utilising the 'settings approach';
- the importance of flexibility in project design when dealing with community development activities;
- continued MOH enthusiasm and support for decentralisation and devolution of the health system;
- the importance of an intersectoral approach to improving health outcomes, especially engaging with the education sector and PWD;

- the need for appropriate undergraduate training — especially in non-clinical areas — for health professionals who will work in remote settings; and
- The successful application of the principles of KRHP in other sub-divisions is dependent in large part on strong leadership. Appropriate location selection criteria are important and should include strength of community leadership.

The Kadavu presentation was made by the Ministry of Health team member and the Team Leader. The resultant discussion related more to ongoing operational issues and problems, rather than the more strategic issues considered in Suva. Some of these operational issues are specific to Kadavu. Many are related to the need for systemic reform. The main issues raised by discussants were:

- Repairs and maintenance continue to be problematic. For example, the main hospital steriliser remains non-functional; the 4WD vehicle has been in Suva for some months for relatively inexpensive repairs and there is no land transport available to the hospital;
- Power generation remains an ongoing issue. The main Vunisea generator is operational for only 8 hours each day and the hospital emergency generator is used in the intermittent periods;
- Transport remains a critical issue. There is still only one boat in service. There has been a request to a resort on the island for the donation of a boat. The SDMO is involved in discussions with one village and an insurance company about a pilot insurance scheme covering patient transport;
- Community participation remains high. The proposed insurance scheme is one example. The Provincial Council allocation to health has dropped to $20,000. This is to be used to leverage further funds from government to upgrade village sanitation across the province; and
- There was discussion about criteria used for the selection of sub-divisions for future similar projects.

In conclusion, the direct feedback of the results of the evaluation was positively received and enhanced the dissemination of lessons learned. The economic analysis engendered considerable interest and discussion within MOH which then commissioned further work from the team economist. The recommendations in this report will provide the basis for continuing discussions between AusAID and MOH on support for rural health systems in Fiji.

Appendices

Appendix 1: Mission itinerary and list of persons consulted

Tuesday 16 May 2000	Suva	Mr Geoff Adlide, AHC
		Dr Graham Roberts, former Team Leader
		Dr Goneyali, Acting Permanent Secretary of Health
		Dr Margaret Cornelius, Director, National Centre for Health Promotion
		Rigieta Nadakuitavuki, Director of Nursing
		Director Finance and Administration, MOH
		Mr Hira Mani, Human Resource Management, MOH
		Mr Bob Smyth, ATL, TCHP
Wednesday 17 May 2000	Suva	Mr Charles Katoanga, Manager Development Planning and Marketing, Fiji School of Medicine
		Dr Apenisa Ratu, Registrar, FSM
		Professor David Phillips, FSM
		Mr Simioni Kaitoni, MP
		Ms Verona Lucas, Director Foundation for the Peoples of the South Pacific
		Mr Charles Wyler, FSP
		Mr John Davidson, Counsellor, AHC
		Mrs Bal Govind, Acting Principal, Fiji School of Nursing
		Dr Pryor, FSM
		Neil Billings, PWD
Thursday 18 May 2000	Suva	Dr Margaret Cornelius, Director, National Centre for Health Promotion
	Kadavu	Dr Devita Qoroniasi, Sub-Divisional Medical Officer, Vunisea Hospital, Kadavu
		Sr Sereana Vulaono, Sub-Divisional Health Sister
		Sr Naqai, Sister-in-charge
		Sr Mereani Yaramamua, Acting Health Sister
		Sr Venina Tikoitamavua Sub-Divisional Health Sister
		Timaima Naivalurua, Hospital Administrator
		Mr Iisireli Vuanivono, Sub-Divisional Health Inspector
Friday 19 May 2000	Ravitaki	Staff Nurse Mare
	Nasegai	Chiefly reception
		Chiefly reception
		Iliseva Toga, VHW
		Emi Vukeiono, VHW
		Turaga ni Koro
		Women's focus group
	Daviqele	*Tikina* Council Meeting
		Turaga ni Koro
		Sr Sarah Daveta
		Staff Nurse Raiwaqiri Tagilala
Monday 22 May 2000	Tavuki	*Tikina* Health Committee
		Bulou Iva, Bulou Gavidi, members of Chiefly family
		Marama, ex-VHW
		Women's focus group
		Apolosa Naivalurua, Assistant Roko

Tuesday 23 May 2000	Soso	Ratu Bose
		Staff Nurse Milike
		VHW Miriama
		Setaita Makoto, VHW
	Dravawalu	Chiefly reception
		Ratu Devita
		Turaga ni Koro
		Women's focus group, youth focus group
Wednesday 24 May 2000	Vacalaya	*Ratu* Vaitusi
		Turaga ni Koro
Thursday 25 May 2000	Gasele	Staff Nurse Milakere Vakacabeqoli
	Kavala	Nurse Practitioner Vere Ragogo
		Staff Nurse Rehana Narayan
		Staff Nurse Amit Narayan
	Nakoronawa	Chiefly reception
		Women's focus group
Friday 26 May 2000	Naqara	D/N Veniana Dansey
		D/N Esiteri Vakaema
Thursday 1 June 2000	Sydney	Peter Champion, Alexander and Lloyd
		Dr Isimeli Tukana, ex-SDMO

Appendix 2: Terms of reference

1. Activity to be evaluated

This evaluation will focus on the Kadavu Sub-division Rural Health Project (KRHP) in Fiji.

2. Background

The Kadavu Rural Health Project developed out of a request from the Ministry of Health (MOH) in Fiji to build a new hospital at Vunisea on the island of Kadavu. Project design followed and implementation commenced in June 1994.

The project's goal was to develop an integrated approach to the rural health care delivery system for the Kadavu Medical Sub-Division of Fiji. The project had four components:

1. to develop an integrated approach to the rural health care delivery system in Kadavu through community participation in health related activities;

2. to train MOH staff and community personnel to provide the skills and knowledge to effectively manage the integrated health delivery system in the Kadavu Medical Sub-Division;

3. to provide adequate health care infrastructure, equipment and services to support the health care delivery system in the Kadavu Medical Sub-Division; and

4. to efficiently and effectively manage the project to achieve set objectives within budget and within the agreed time frame.

The project has been reviewed at various stages of implementation. A mid-term review was undertaken in 1996. A post-project evaluation was undertaken three months after project completion in September 1997 to critically appraise the completed project's effects on various community processes including health advocacy, gender participation, health information seeking, health policy output of local government, policy directed communal action, use of health services, improvements in personal, social and natural environments, and the impact of a small grants scheme on village activities. The evaluation was required at that time due to scheduled discussion of health sector pipeline activities at High Level Consultations (HLCs) later in 1997. Both governments sought recommendations on whether lessons learned from KRHP could be replicated in other islands of Fijian islands.The evaluation found, *inter alia*:

- an extensive improvement in health facilities and community public health infrastructure;

- a network of trained Village Health Workers and Village Environment Workers had been established but the short project life did not allow time to consolidate project structures;
- increased public awareness of health issues had occurred, and health had been given priority on the planning agendas at all levels;
- planning could have been more gradual and participation more extensive; and
- the building and equipment provision may not have been appropriate for the level of service targeted and did not reflect adequate levels of community involvement, leading to recurrent cost implications for MOH.

Given that a full assessment was not feasible immediately post-project, it was recommended that an impact and effectiveness evaluation take place two to three years after project completion. This timing would enable the evaluation to assess project sustainability and inform the implementation of future projects, in particular the Taveuni Community Health Project.

3. Issues

The following section summarises the full Issues Paper at Attachment 1.

3.1 Sustainability

In light of the previous evaluation, this should be a focus of the evaluation. The community development approach implemented in this project was to ensure appropriateness of interventions and sustainability of health service developments. Both design and implementation should clearly enunciate strategies to ensure sustainability.

3.1.1 Financial sustainability

This includes salaries, ongoing operational costs of staff and equipment and ongoing physical resource maintenance.

3.1.2 Sustainability of training initiatives

Training and support for training activities at all levels — local, Sub-Divisional, MOH – and the impact of FHMRP in this area will be considered. This will include the costs of training, availability of skilled trainers, release of staff as appropriate and supporting policies need to be considered.

3.1.3 Community participation

Community participation and a sense of community ownership contribute significantly to the sustainability of time-limited project outcomes.

3.2 Transferability

Already there have been lessons learnt from Kadavu and applied to the Taveuni Community Health Project. Two major developments have been a longer project cycle — five years instead of three — and the emphasis on measurement of baseline indicators, thus allowing monitoring and evaluation of project activities and outcomes. Should GOF wish to pursue a policy of continuing rural health development, then an iterative process of applying the principles of the Kadavu project, particularly the health promotion focus, could be helpful. These principles may also be able to be applied in other PICs.

3.3 Articulation with other projects

Good co-ordination of different aid projects within the sector has two positive effects. The first is to minimise the strain on the PG in responding to multiple contemporaneous projects. It is often a relatively small number of senior PG officers who need to respond to and be active in projects. The second is that lessons learnt from one project can inform others. With careful design and management, a synergistic effect will result in the whole of the activity in the health sector being greater than just the sum of the individual projects. There are several projects that can gain from the lessons learnt in KRHP. These are TCHP, the Fiji Health Management Reform Project (FHMRP) and the Fiji School of Medicine Post-Graduate Training Project. Perceptions and impact or potential impact of FHMRP on health activities on Kadavu will considered.

3.4 Role of Village Health Workers

Community Health Workers or Village Health Workers (VHWs), as they are called in Fiji, are the frontline of PHC services in rural and remote areas. They can be a critical link between community and health system. Supporting and lifting the status of VHWs is also important in influencing utilisation patterns and the 'enduring beliefs that a doctor is always better'[1]. PPER reports attrition rates of 32 per cent in 1995 and 34 per cent in 1996. It identifies a number of issues and lessons learnt in relation to VHWs (p 32). These revolve around appropriate selection of VHWs, particularly with respect to social status, and ongoing support and incentives, particularly appropriate training. The sustainable of training activity, retention of VHWs and changes in their status will be examined.

1 Nii-K Plange 1999 Taveuni Community Health Project Baseline Survey on Community Health Needs and Utilization of Health Services Draft Report

3.5 Design process

Two interrelated aspects of the design process are highlighted in the PCR and PPER. The first relates to community involvement in the design. The second aspect is the tension between the prescribed design template and a community development approach to health. This evaluation will explore issues of design and implementation flexibility which can inform future application of the principles of KRHP.

3.7 Physical infrastructure

There are a number of evaluation issues related to infrastructure. These are immediately relevant to the implementation of the Taveuni project. They are listed in detail at Attachment 1.

3.8 Health service utilisation

Inappropriate utilisation of the health system throughout Fiji is a common problem documented in the FHMRP design, KRHP PDD and the TCHP baseline studies. An underlying feature of KRHP, TCHP and FHMRP is an enhancement of PHC services through different strategies in order to increase the public's confidence in local health staff and facilities, and decrease the bottlenecks in and costs of the health system. Available data will be examined for trends disaggregated by gender and age.

3.9 Economic analysis

AusAID policy is directed to poverty alleviation. A cost-effectiveness study and evaluation of economic impact would be useful and should be considered by AusAID as a formal component of any health service development project evaluation.

3.10 Evaluation

Evaluation needs to be an element built into project design. This is a lesson already learnt which has been applied on Taveuni. The baseline surveys are information rich and document indicators which can be monitored over time.

Ongoing issues impacting on the long term success of KRHP include:

1. cost and recurrent cost (including cost sharing) implications, and the capacity of GOF to maintain the infrastructure provided under the project;
2. GOF's ability to retain and continue to train staff; and

3. concerns that the short project life did not allow time to consolidate community structures eg village health committees which were intended to sustain the momentum of KRHP and its community health activities.

A further issue impacting on the long-term effectiveness of the project involves health reforms currently under consideration in Fiji as part of a broader reform agenda. The effectiveness of various services (including nursing stations, health centres and sub-division hospitals) and community perceptions of these services and referral systems will be investigated during the reform process. The outcomes of these investigations will have significant ramifications for current and future health projects, including the services provided at Kadavu and the implementation of activities under the Taveuni Community Health Project.

4. Purpose of the evaluation

The evaluation of the Kadavu Rural Health Project forms an important element of PIA's program of ex-post evaluations for 1999–2000 and complements the section's focus on assessing impact of activities in order to improve the quality of the aid program through the feeding of lessons learned into new and on-going activities.

The evaluation will contribute to AusAID's collection of lessons learned on rural and community health projects. Appropriate findings will also be fed into the Taveuni Community Health Project, which was designed along similar lines to KRHP and is currently being implemented in Fiji.

The purpose of the evaluation is to assess the effectiveness of the project in meeting its objectives and the impact of project activities in contributing to the broad outcome of poverty alleviation. The evaluation will specifically focus on the following:

- the appropriateness of goal and purpose of the project in the context of Government of Fiji needs and priorities, AusAID's country strategy for Fiji and overall aid program objective;
- the extent to which the activity has achieved its stated goal and objectives;
- the outcomes and impact (both intended and unintended) of the project;
- the efficiency of project implementation;
- the sustainability of the benefits and project achievements, including the extent to which the community health activities and community structures have continued post-project and the implications of high recurrent costs;

- the appropriateness of goal and purpose of the project in the context of Government of Fiji needs and priorities, AusAID's country strategy for Fiji and overall aid program objective;
- the appropriateness of the design and design process given the stated goal and objectives;
- the extent to which the activity has achieved its stated goal and objectives;
- the outcomes and impact (both intended and unintended) of the project;
- the cost effectiveness of the project (economic analysis);
- project implementation performance;
- the sustainability of the benefits and project achievements; and
- the transferability of the principles underlying the project to other settings.

In assessing the effectiveness of the project the evaluation will look in particular at the lessons that can be applied to the Taveuni project, taking into account the distinct contexts. Any other major lessons learned at each stage of the project cycle will also be identified.

5. Evaluation questions

The Evaluation Team will examine, assess and report on:

Design

The quality of the design, including:

- project rationale, including location of project;
- the design process and analysis, in particular the extent and scope of consultation and the use of participatory approaches in developing the project strategy; and
- design flexibility.

Policy

- the extent to which the project conformed to or departed from the relevant AusAID policies at time of implementation; and
- the coherence of the project with the health policy and strategic planning goals of the GOF at the national and local levels at time of implementation.

Impact

- the project's impact on intended beneficiaries, including women and minority groups, both beneficial and adverse, economic and non-economic; and
- the impact on broader policy formulation in the GOF Health sector including the extent of feedback into GOF planning approaches and the transfer of health management practices to the formal and informal health care systems.

Sustainability

The sustainability of the project's benefits including:

- the capacity of GOF to maintain infrastructure;
- institutional strengthening of the target institutions and community structures;
- the capacity of GOF to provide and maintain staffing for the upgraded facility;
- skills transfer to MOH staff and village health workers and village environment workers;
- an assessment of any improvements in, and the maintenance of, the general health status of the population; and
- sense of community ownership of project initiatives and implementation.

Participation

- the level of participation of the key stakeholders — especially target communities in determining project priorities, management issues, technologies and maintenance arrangements — at all stages of the Activity Cycle.; and
- the use of gender disaggregated data on the involvement of women and men in project activities — including management of the integrated health delivery system, training, and the maintenance of facilities (to inform both design and implementation strategies) — at all stages of the Activity Cycle.

Management

- implementation arrangements and management procedures, including the performance of the Australian Managing Contractor and partner government agencies involved in implementation, and their impact on project performance;

- quality of the monitoring systems developed for the project, the standard of reporting and how this contributed to the project's impact;
- financial and economic performance of the project and of key institutions; and
- the implementation schedule and how it contributed to, or hindered the attainment of the project's goal and objectives.

6. Team composition and participation

The evaluation team consists of Associate Professor John Wakerman, public health physician, as Team Leader; Ms Mary Baker, health facility planning and design consultant with qualifications in nursing and architecture; Ms Bronwyn Robbins, Task Manager and team member, Performance Information and Assessment section of AusAID; Mr Timoci Young, Senior Environmental Health Officer representing MOH, and Mr Greg Barrett, health economist.

The evaluation team will consist of two consultants, a nominated member of the Government of Fiji and one AusAID officer. One consultant will be engaged as Team Leader and will be a health sector specialist with experience in remote area health service delivery in the Pacific (preferably in Fiji), remote health education and evaluation. He/she will have responsibility for formulating the issues paper and the evaluation method, conducting the evaluation and preparing and finalising the evaluation report. The Team Leader will be required for approximately 30 days: including preparation of the issues paper, methodology etc for the mission, two to three weeks in the field and finalisation of the report after the mission.

The second consultant will be a health sector specialist with experience in community development, nursing and health facility planning in the Pacific and in Australia. He/she will be required for approximately 22 days, including review of Project documentation, contribution to preparation of issues paper in their area of expertise, the field trip, pre-and post mission inputs and report writing.

The Government of Fiji may nominate a team member, who should be familiar with the objectives and activities of Kadavu Rural Health Project but, in order to maintain an independent and objective perspective toward the Evaluation, they he/she should not be or have been closely involved in the day-to-day management or activities of KRHP. He/she should if possible have experience at both MOH national level as well as provincial or local government levels. It would also be useful if the person had knowledge or involvement in the health reform agenda. (Due to possible time and resource constraints, GOF may choose not to nominate a GOF team member. The decision on whether or not to include a GOF member will be conveyed by GOF prior to the arrival of the Team Leader and Second Consultant in Fiji).

The exact timing and scheduling of the study will be finalised during the issues paper stage of the Evaluation. However, outlined below is a draft schedule that will assist in the preparation of a bid for the Evaluation:

Debriefing in Canberra. One day in May/early June 2000. Completion of draft report post-mission (Team Leader) seven days in June 2000. Team Leader to complete final Evaluation report upon receipt of comments from AusAID and other stakeholders. Two days in June 2000.

7. Scope of services

The *Team Leader* will undertake the following tasks in order to report on the evaluation questions set out in Section 5 above.

- *Preparation*: the consultant will familiarise him/herself with existing documentation on the Kadavu project, including PDD, PID, all monthly reports, six monthly reports, Annual Plans, 4 project guidebooks, Kadavu Health Project Effectiveness Review, Project Coordinating Committee Minutes, Project Completion Report, Post-project Evaluation Report and any other relevant documentation. Selected documentation on the Taveuni Community Health Project and the Fiji Health Management Reform Project should also be consulted, as well as literature on the current status of GOF's reform agenda. Other studies on the health sector in Fiji (eg. prepared by other donors) should also be consulted to inform the issues paper. The consultant should also be familiar with the sections relevant to evaluation within AusAID's bilateral project manual (AusGUIDE) i.e. Stage 5, Completion and Evaluation, and AusGUIDEline 14, Preparing project ex-post evaluation reports.

- *Issues paper*: the consultant will produce an issues paper for discussion with the Kadavu evaluation advisory group covering purpose and objectives of the evaluation; stakeholders' use of the final evaluation and their requirement to feed lessons learned into future health activities in Fiji; key questions/issues to be examined in evaluation; analysis of existing data; planning, time allocation, appropriate and possible field times; proposed methodology including process, techniques, tools, indicators and data sources and any information /questions to be sent to the project area prior to the team's arrival; preliminary work on data collection and analysis; draft itinerary; and draft TOR (including Team Member-specific TOR).

- *Briefing*: the consultant will participate in briefing prior to the fieldwork and debriefing at the conclusion of the mission. He/she will also participate in an in-house seminar after report publication.

- *Field work*: the consultant will undertake the fieldwork as set out in agreed TOR finalised during the issues paper stage of this assignment.
- *Finalisation of report*: the consultant will be responsible for production of the final report following the field mission.

The *second consultant* will undertake the following tasks:

- *Briefing*: the consultant will participate in briefing prior to the fieldwork and debriefing at the conclusion of the mission.
- *Fieldwork*: the consultant will undertake the fieldwork (as specified in agreed TOR finalised during the issues paper stage of this assignment).
- *Finalisation of report*: the consultant will contribute to the final report (as specified in the final TOR) following the field mission.

8. Methodology

Quantitative and qualitative methods will be utilised. The qualitative methods will include review of relevant documentation, in depth interviews and focus groups. Quantitative methods will include review of expenditure data, review of available morbidity and mortality data, health service utilisation data, staff turnover and staff training data. Detailed methodology is at Attachment 1 (Issues paper).

9. Reports

The Team Leader shall provide to AusAID the following reports/documents:

1. an *issues paper* by (date to be finalised) for discussion with the Kadavu evaluation advisory group covering the issues set out under item 6 above
2. an *aide–memoire* for discussion at conclusion of field mission with GOF.
3. a *draft evaluation report* to be submitted to AusAID within 2 weeks of return to Australia from the field mission.
4. the *final evaluation report* incorporating comments from AusAID, GOF, and input from team members.

10. Planned timetable

17 April	Draft Issues paper
28 April	Final Issues paper and TOR
1 May	Briefing, Canberra
15 May	Travel to Suva
16–18 May	Consultation Suva
18 May	Travel to Kadavu
29 May	M. Baker and J. Wakerman to Taveuni (team may split, one remaining on Kadavu, depending on Kadavu travel schedule)
30 May	Meet with TCHP team
31 May	Travel to Suva
1 June	Follow up consultation Suva
2 June	Debriefing MOH, AHC
4 June	Depart Suva
5 June	Debrief Canberra
30 June	Draft report
31 July	Final report
20 December	Feedback seminar in Suva

Appendix 3: Documents reviewed

AusAID 1994 Kadavu Sub-Division Rural Health Project, Project Design Document, Canberra

AusAID 1995 Kadavu Sub-Division Rural Health Project, Project Implementation Document, Canberra

AusAID 1995 Kadavu Sub-Division Rural Health Project, Annual Plan 1996, Canberra

AusAID 1996 Kadavu Sub-Division Rural Health Project, Annual Plan 1997, Canberra

AusAID 1997 Kadavu Sub-Division Rural Health Project, Project Completion Report, Canberra

AusAID 1997 Kadavu Sub-Division Rural Health Project, Post-Project Evaluation Report, Canberra

AusAID 1998 Fiji Health Management Reform Project, Project Design Document, Canberra

Kadavu Rural Health Project 1997 A Healthy Island, NCHP Suva

Kadavu Rural Health Project 1997 Local Council Health Promotion, NCHP Suva

Kadavu Rural Health Project 1997Community Learning and the Health Adviser, NCHP Suva

Kadavu Rural Health Project 1997 Village Health Worker, NCHP Suva

Kolbe T 1999 Taveuni Community Health Project Report No. 8, An Assessment of the Health Status of the Population of Taveuni

Nii-K Plange 1999 Taveuni Community Health Project Draft Report No. 9, Baseline Survey on Community health Needs and Utilization of Health Services USP Suva

Roberts G 1997 The Kadavu health promotion model, Fiji. Health Promotion International 12:4 283–290

Appendix 4: Issues paper May 2000

List of acronyms

AHC	Australian High Commission
CWM	Colonial War Memorial Hospital (Suva)
FHMRP	Fiji Health Management Reform Project
FSP	Foundation for People of the South Pacific
FSM	Fiji School of Medicine
FSN	Fiji School of Nursing
GOF	Government of Fiji
HIS	Health information System
KRHP	Kadavu Rural Health Project
LBW	Low Birth Weight
MOH	Ministry of Health (Fiji)
NGO	Non-Government Organisation
PCR	Project Completion Report
PDD	Project Design Document
PG	Partner Government
PHC	Primary Health Care
PICs	Pacific Island Countries
PPER	post-project Evaluation Report
PWD	Public Works Department
QAG	Quality Assurance Group
TCHP	Taveuni Community Health Project
TOR	Terms of Reference
VHW	Village Health Worker

1. Introduction

The Kadavu Rural Health Project (KRHP) was implemented in the period 1994 to 1997. A Project Completion Report (PCR) was produced and a post-project evaluation was carried out three months after project completion, in September 1997. This evaluation was required in order to inform High Level Consultations in 1997, which considered whether a similar integrated approach to rural health care delivery could be transferred to other islands of Fiji. At least some major lessons learnt were incorporated into the Taveuni Community Health Project (TCHP). It was recommended that an evaluation take place in two to three years to measure effectiveness and sustainability of the changes made during the project.

This issues paper complements and should be read in conjunction with the Terms of Reference for the ex-post evaluation. It is based on a document review, consultation with a number of AusAID staff in Canberra, discussion within the current evaluation team and incorporating written comments on the draft TOR from the Suva post.

2. Purpose and objectives of the evaluation

The purpose of the evaluation is to assess the effectiveness of the project in meeting its objectives and the impact of project activities in contributing to the broad outcome of poverty alleviation. In light of previous evaluation activities, the focus will be on assessment of the sustainability of activities and infrastructure that resulted from the project, and on lessons learnt that inform the implementation of the Taveuni Community Health Project and other similar primary health care (PHC) enhancement projects.

The objectives of the evaluation are to assess:

1. the appropriateness of goal and purpose of the project in the context of Government of Fiji needs and priorities, AusAID's country strategy for Fiji and overall aid program objective;
2. the appropriateness of the design and design process given the stated goal and objectives;
3. the extent to which the activity has achieved its stated goal and objectives;
4. the outcomes and impact (both intended and unintended) of the project;
5. the cost effectiveness of the project (economic analysis);
6. project implementation performance;
7. the sustainability of the benefits and project achievements; and
8. the transferability of the principles underlying the project to other settings.

Objective 7 includes the extent to which the community health activities and community structures have continued post-project, the implications of recurrent costs, the extent of community participation in community health activities and the extent to which the model developed has been considered useful in GOF planning and the planning of other AusAID projects.

In assessing the effectiveness of the project the evaluation will look in particular at the lessons that can be applied to the Taveuni project, taking into account their different and distinct contexts. Any other major lessons learned at each stage of the project cycle will also be identified.

3. Issues

3.1 Sustainability

In light of the previous evaluation, this should be a focus of the evaluation. The community development approach implemented in this project was to ensure appropriateness of interventions and sustainability of health service developments. Both design and implementation should clearly enunciate strategies to ensure sustainability.

A high quality design will contribute to project sustainability. The AusAID Quality Assurance Group (QAG) describes a template against which a project design can be measured for quality.

1. Objectives should be clear, measurable, appropriate and realistic.
2. Project design should be developed using participatory planning techniques.
3. Clear documentation should be provided of Partner Government (PG) contributions including costs and timing.
4. Risk analysis and management plan should be clear and comprehensive.
5. Sustainability analysis and strategy should address how the project will maximise sustainability of benefits.
6. Monitoring framework should be comprehensive and show how performance information will be provided against log frame indicators.
7. Design should include an explicit link to poverty reduction.
8. Project design should be suitable for contracting.

Through document review and interviews the design can be assessed for sustainability against these criteria.

The PCR explicitly documents several strategies to ensure sustainability:

- identifying the need for follow up support for the Provincial Health Committee and Provincial Office (but no indication what this might be or how it would be implemented);
- ongoing training;
  - utilising the four manuals developed;
  - incorporated into Ministry of Health (MOH) staff development activity
  - utilising work experience placements and clinical attachments;
- Maintenance of physical infrastructure and equipment by the Public Works department (PWD) and the biomedical engineering unit of Colonial War Memorial Hospital (CWM) respectively; and
- '...integration of learning with organisational development...'.

The effectiveness of these suggested strategies needs to be assessed. Overall, there would appear to be inadequate documentation of specific strategies to ensure sustainability. Strategies should cover the following areas.

3.1.1 Financial sustainability

This includes salaries, ongoing operational costs of staff and equipment and ongoing physical resource maintenance.

3.1.2 Sustainability of training initiatives

The costs of training, availability of skilled trainers, release of staff as appropriate and supporting policies need to be considered. This can be considered at different levels. At Sub-Divisional level, what are current training activities? How are they being assessed for quality and impact? At MOH level, is there monitoring, support and appropriate policy framework? Are there established training packages for different health professional groups? Have these been mainstreamed or institutionalised? Finally, How has FHMRP capacity building assisted MOH in the areas of policy formulation, training program development, monitoring and funding of training activities?

3.1.3 Community participation

Community participation and a sense of community ownership will contribute significantly to the sustainability of time-limited project outcomes. One

evaluation question is therefore: has there been a shift in the perception of responsibility and 'ownership' of health activity toward the community? The timeframe of projects needs to be of appropriate length to allow for development of appropriate community structures for participation. There also needs to be ongoing support for community health committees and other local structures. Whilst there was involvement by FSP, a Suva-based NGO, there was no documented local NGO involvement. The PPER also indicates there was limited penetration of the project at household level. What is the local perception of the small grants scheme?

3.2 Transferability

Already there have been lessons learnt from Kadavu and applied to the Taveuni Community Health Project. Two major developments have been a longer project cycle — five years instead of three — and the emphasis on measurement of baseline indicators, thus allowing monitoring and evaluation of project activities and outcomes. Should GOF wish to pursue a policy of continuing rural health development, then an iterative process of applying the principles of the Kadavu project, particularly the health promotion focus, could be helpful. These principles may also be able to be applied in other PICs.

3.3 Articulation with other projects

Good co-ordination of different aid projects within the sector has two positive effects. The first is to minimise the strain on the PG in responding to multiple contemporaneous projects. It is often a relatively small number of senior PG officers who need to respond to and be active in projects. The second is that lessons learnt from one project can inform others. With careful design and management, a synergistic effect will result in the whole of the activity in the health sector being greater than just the sum of the individual projects. Failure of articulation on the other hand could result in MOH fatigue with multiple projects, difficulties in sustainability and potentially the establishment of different, incompatible systems, such as HIS, within the sector. The effects of KRHP and subsequent projects on MOH and GOF policy in this area are of interest.

There are several projects that can gain from the lessons learnt in KRHP. Lessons learnt can and should inform TCHP. As already noted, some lessons have already been applied. In particular, the enhanced timeframe for implementation of TCHP and the comprehensive baseline studies deserve recognition.

Lessons learnt from KRHP can also inform the Fiji Health Management Reform Project (FHMRP). In particular, the resource implications of decentralisation of services and delegations are critical issues. FHMRP design also recommended

definition of appropriate standards of human and physical resources at different levels of the health system (see 3.8 below). KRHP may also inform the articulation of TCHP and FHMRP. Local knowledge and perception of the effects of FHMRP will also be examined. The third relevant project is the Fiji School of Medicine Post-Graduate Training Project. Issues related to training, particularly management training and placements for specialist trainees at sub-divisional level, are relevant to this project.

3.4 Role of Village Health Workers

Community Health Workers or Village Health Workers (VHWs), as they are called in Fiji, are the frontline of PHC services in rural and remote areas. They can be a critical link between community and health system. Supporting and lifting the status of VHWs is also important in influencing utilisation patterns and the 'enduring beliefs that a doctor is always better'[1]. PPER reports attrition rates of 32 per cent in 1995 and 34 per cent in 1996. It identifies a number of issues and lessons learnt in relation to VHWs (p 32).

These revolve around appropriate selection of VHWs, particularly with respect to social status, and ongoing support and incentives, particularly appropriate training. The sustainability of training activity, retention of VHWs and changes in their status will be examined.

Evidence from Taveuni which informs the situation on Kadavu identifies the need for additional training for VHWs as a strong perception reported in the Taveuni baseline survey.[2] 'Their responsibilities appear to outweigh their level of (trained) expertise.[3] The author also reports high attrition rates. Perceived reasons for leaving the health service are: (i) inability to work with the Turaga-n-koro, (ii) no monetary returns, (iii) less support from the community, (iv) too time consuming and (v) married off into another community.[4]

3.5 Design process

Two interrelated aspects of the design process are highlighted in the PCR and PPER. The first relates to community involvement in the design. It is axiomatic that the better the reflection of community priorities, processes and existing community structures in a design, the more likely will be the successful,

1 Nii-K Plange 1999 Taveuni Community Health Project Baseline Survey on Community Health Needs and Utilization of Health Services Draft Report

2 Ibid. p 50

3 Ibid. p 56

4 Ibid. p 51

sustained implementation of a reconfigured or enhanced PHC system. The PPER comments that the design needed better cognisance of local socio-political issues and systems to assist the pace of implementation. There are implications for the period of time required for an appropriate design, composition of the design team and design tools.

This raises the second aspect, which is the tension between the prescribed design template and a community development approach to health. The PCR pointedly states that '...community development was an emergent phenomenon not suited to the prescriptive nature of scheduled objectives... In this regard, project designs based on timed log-frame indices may not always be appropriate, as expenditure patterns and actual outcomes will differ from those predicted' (p 21).

Some lessons learnt have been applied in TCHP. An expanded implementation period of five years with the first year a 'listening year' as recommended in the PPER has been instituted. There has also been a concerted effort to ensure a 'bottom-up' approach to infrastructure development; that is, refurbishment of peripheral facilities prior to construction of the sub-divisional hospital. Nevertheless, there are a number of issues relating to the design process which might be considered in this evaluation, particularly as they relate to section 3.2 above.

- Optimal design team composition.
- Time frame for project design.
- Flexibility of the design template.
- Flexibility of design implementation.

In relation to points 3 and 4, the log-frame is an excellent instrument for project managers and for funders who require clear accountability and make payments related to specific outputs. However, the PCR in particular has identified the tension that exists between the log-frame approach and a community development approach which sometimes results in unpredictable but beneficial outcomes and by its nature is governed by a community timeframe, rather than that of the project manager. Clearly one strategy to address this tension is to maximise the participatory process in the design of the project (see QAG key point 2 in section 3.1 above). Design flexibility is also feasible. For example, FHMRP design allocates a pool of funds to purchase unspecified specialist inputs according to need as the project develops. Another potential strategy is a 'design and implement' process with an extended design timeframe instead of the implementation phase 'listening year'. This evaluation can explore issues of design and implementation flexibility which can inform future application of the principles of KRHP.

3.7 Physical infrastructure

There are a number of evaluation issues related to infrastructure. These are immediately relevant to the implementation of the Taveuni project.

1. Timing — construction and refurbishment of nursing stations and health centres before the main hospital gives a clear message to consumers about their importance and may assist in the problem of by-passing of peripheral facilities.

2. Upgrading of peripheral facilities and expectations of consumers need to be linked to appropriate training and community education about upgraded skills e.g. nurse practitioners on Taveuni.

3. Baseline utilisation data is needed so that the impact of infrastructure upgrading on consumer behaviour can be monitored.

4. An initial needs assessment with adequate community input is necessary to avoid the overbuilt hospital at Vunisea as reported in the PPER. The PPER also comments that realistic community consultation would have avoided the design faults they have documented.

5. In relation to transferability, there may be a call for clinic/hospital design and housing design templates which meet PWD specifications and which can be adapted to different operating environments. Templates would need to entertain great flexibility in design so that they would be appropriate fitted into different site constraints.

6. Capital costs must be associated with adequate recurrent funds to ensure adequate maintenance of facilities.

7. Transport and communication infrastructure and associated recurrent costs for maintenance are critical to access, and appropriate utilisation and referral patterns. There needs to be clarity about ongoing responsibility for these costs at design phase.

8. Health service enhancement projects which address the prevention of disease and promotion of health should consider consumer infrastructure needs which help people to become responsible for their own health, such that the impact on hospitals is decreased. For example, clean water, sanitation and fundamental housing needs are essential to health.

9. Adequate time is required for site analysis for infrastructure components.

10. An assessment of the environmental impact of a development should be addressed.

11. In the design process, masterplanning as the first stage could be presented to the wider community including church, education, elderly and youth, as well as health service staff. In this way, the community feel some ownership and responsibility from the outset, and the baseline for facility planning is established which assists in minimising design changes later in the process.

12. Selection of appropriate equipment in terms of simplicity of operation and ongoing maintenance costs is imperative in order to add to the sustainability of the project.

3.8 Health service utilisation

Inappropriate utilisation of the health system throughout Fiji is a common problem documented in the FHMRP design, KRHP PDD and the TCHP baseline studies. Kolbe (1999) quotes McDonald in citing reasons for bypassing as the perception that 'bigger was better' and that help required was not locally available. There is also a lack of policy direction in relation to range of service provision at each level of the health system. Suggestions from consumers as to how to improve local services included the provision of increased diagnostic facilities, outreach clinics by doctors and a broader and more constant supply of pharmaceuticals.[5] These findings are consistent with the findings of the FHMRP design team. Kolbe (1999) also cautions about the training required and resultant workload should the range of services be expanded at health centres and nursing stations. An underlying feature of KRHP, TCHP and FHMRP is an enhancement of PHC services through different strategies in order to increase the public's confidence in local health staff and facilities, and decrease the bottlenecks in and costs of the health system. A combined quantitative/qualitative approach as per the Taveuni baseline studies, with a defined set of indicators, is ideal for measuring impact on this critical feature.

Utilisation data will also be examined for trends by age and gender.

3.9 Economic analysis

AusAID policy is directed to poverty alleviation. Economic analysis of the benefit or effectiveness of this intervention has been poor. Social impact, including effect on urban drift, is of interest, although it would be difficult to measure without an appropriate research design, such as the Taveuni baseline studies. Timing of an assessment of economic impact was not appropriate at the time of the PPER. A cost-effectiveness study and evaluation of economic impact

5 Kolbe T 1999 An Assessment of the Health Status of the Population of Taveuni p17

would be useful and could be considered by AusAID as a formal component of any health service development project evaluation.

3.10 Evaluation

Evaluation needs to be an element built into project design. This is a lesson already learnt which has been applied on Taveuni. The baseline surveys are information rich and document indicators which can be monitored over time. The establishment of an appropriate health information system as part of project implementation should be a priority. It is understood that a prototype has been developed in Samoa which could be applied. Kolbe (1999) recommends the addition of a Public Health module to this system and adoption through TCHP and FHMRP.[6] HIS articulation between the peripheral facilities and MOH is essential and it is gratifying to see evidence of good communication between TCHP and FHMRP on this matter.

4. Methodology

We will utilise quantitative and qualitative methods. The qualitative methods will include review of relevant documentation, in depth interviews and focus groups. The literature review will include all Kadavu project documentation, including previous evaluations, Taveuni and Health Management Reform Project documentation, other relevant AusAID and GOF policy documents and a published paper by the former Kadavu Team Leader. The community participation tool as adapted from Rifkin by the post-project evaluation team will be used with consumer groups in the same villages as previously applied. A checklist based on an expanded list of evaluation question topics will be utilised in interviews and focus groups.

Quantitative methods will include review of expenditure data, review of available morbidity and mortality data, health service utilisation data, staff turnover and staff training data. Analysis of gender disaggregated activity data on the involvement of men and women in project activities including health service management, training and maintenance of facilities will be included.

Stakeholders will be identified through initial consultations with AusAID staff, other team members and the literature review. Broadly, stakeholders will include staff of the Ministry of Health and local staff on Kadavu and Taveuni, health service consumers and other community members through their relevant community organisations, non-government organisations, other aid agencies as appropriate, AusAID staff in Canberra and in country, Taveuni and Health

6 Ibid. p 32

Management Reform Project staff and staff of other Ministries in Fiji as appropriate.

Stakeholder input will also be gained through circulation of this draft Issues Paper to MOH and AusAID staff, feedback through aide memoire, debriefing and circulation of a draft report.

Sampling will be purposeful and opportunistic, not random. The evaluation team needs to ensure an adequate representation of different types of health facility and geographical spread of locations. We will visit health centres, nursing stations and village dispensaries in different parts of the sub-division, particularly including examples of more remote facilities on the island.

The application of the adapted Rifkin tool will be in the same four villages as documented in the PPER; namely Tavuki, Nasegai, Dravuwalu and Nakoronawa. Women's focus groups were held in each of the villages and a youth focus group in Dravuwalu Village. As we have comparative data from these groups in these villages, it is worth utilising this method to test for measuring changes in community participation over the past three years. These villages need prior notification of these focus groups.

We note the previous evaluation team's comments about having someone with good interpretation skills available, giving sufficient notice to communities about the timing and purpose of the evaluation visit and not trying to visit too many sites in a short period of time.

Methods, types of data and data sources are identified in the following table. This is the basis for questionnaire development for different groups of interviewees.

Objective	Method	Data Source/Type
1. To assess the appropriateness of goal and purpose of the project in the context of Government of Fiji needs and priorities, AusAID's country strategy for Fiji and overall aid program objective	Document review Interviews	GOF/MOH policy documents AusAID policy documents Senior MOH staff AusAID staff
2. To assess the appropriateness of the design and design process given the stated goal and objectives	Document review Interviews	PDD MOH senior staff, Kadavu senior health staff, Kadavu community representatives, ATL, contracting agent (SAGRIC)
3. To assess the extent to which the activity has achieved its stated goal and objectives	Document review Observation Interviews	PDD,PID,MTR,PCR,PPER,utilisation data Infrastructure, health service activity MOH staff, Kadavu staff, community representatives

Objective	Method	Data Source/Type
4. To assess the outcomes and impact (both intended and unintended) of the project		
i. Technical – infrastructure assessment	Document review	PCR,PPER
	Observation	Infrastructure
	Interviews	Kadavu staff, consumers
ii. Financial	Document review	Expenditure data
	Interviews	MOH staff, Kadavu staff
iii. Economic	Document review	Expenditure data, utilisation data
	Interviews	Kadavu staff, community representatives
iv. Institutional - NGO involvement, cross-sectoral involvement, structures for community participation, MOH support for sub-division	Document review	VHW and other staff training and turnover data, agency reports
	Interviews	NGO representatives, PWD staff, Provincial Health Committee, other community representatives, SDMO, senior MOH staff
v. Social and cultural	Interviews	Church representatives, local staff, teachers, youth groups
vi. Women	Document review	Disaggregated utilisation and staffing data; specifically Pap smear and antenatal coverage trends, contraception uptake, teenage pregnancies; possibly birth locations and LBW trends
	Interviews	Local staff, female consumers, SSV
vii. Environmental	Document review	Incidence of diarrhoea or clinic presentations with diarrhoea
	Observation	Solid refuse disposal, water supply
	Interviews	Environmental health officers, Kadavu health staff
5. To assess the cost effectiveness of the project (economic analysis-relates to economic and financial impact above)	Document review	Itemised expenditure (administration, wages, capital, travel, consumables and drugs,) and budget of cost centres (hospital, nursing stations, health centres) since 1994 Numbers and categories of people employed, especially VHW training and turnover Numbers of outreach visits to smaller communities each year. Number of hospital admissions including length of stay and bed occupancy Information about the small grant scheme funding and expenditure including project completions and ongoing government assistance
6. To assess project implementation performance	Document review	PDD,PID, annual reports, MTR,PCR,PPER
	Interviews	SAGRIC, ATL, MOH, SDMO and other Kadavu staff and consumers
7. To assess the sustainability of the benefits and project achievements		
i. Financial	Document review	Expenditure and budget data
ii. Training	Document review	MOH policy, training schedule, expenditure review
	Interviews	MOH staff, trainers, Kadavu staff especially VHWs
iii. Community participation	Observation	Health committee activity, service-consumer interaction
	Focus groups	Application of adapted Rifkin tool
	Interviews	Provincial, Tikina and Village Health Committee members; Provincial, Tikina and Village Council members; Kadavu health staff

Objective	Method	Data Source/Type
8. To assess the transferability of the principles underlying the project to other settings	Document review Interviews	Analysis of above data Senior MOH staff, AusAID staff, Taveuni health and project staff, NGOs

The following documents can be gathered by the GOF member of the team and AusAID staff and analysis commenced prior to the field mission:

- GOF/MOH policy documents relating to (1) health service development and (2) staff training, particularly VHWs;
- itemised expenditure (administration, wages, capital, travel, consumables and drugs,) and budget of cost centres (hospital, nursing stations, health centres) since 1994;
- numbers and categories of people employed, especially VHW training and turnover;
- numbers of outreach visits to villages each year;
- number of hospital admissions including length of stay and bed occupancy;
- health centre and nursing station utilisation data;
- MOH training schedule and training expenditure;
- information about the small grant scheme funding and expenditure including project completions and ongoing government assistance;
- agency reports – annual reports from sub-division, involved NGOs; and
- disaggregated utilisation and staffing data by gender; specifically Pap smear and antenatal coverage trends, contraception uptake, teenage pregnancies; birth locations and LBW trends since 1994.

5. Outputs

i. Issues paper

ii. Aide memoire

iii. Draft report

iv. Final report

6. Planned timetable

17 April	Draft Issues paper
28 April	Final Issues paper and TOR
1 May	Briefing, Canberra
15 May	Travel to Suva
16–18 May	Consultation Suva:
	- AusAID post
	- MOH: Permanent Secretary, Directors of Health Planning, Nursing Services, Administration and Finance, Chief health Inspector, HPU
	- FHMRP
	- FSM
	- FSN
	- PWD
	- National Centre for Health Promotion
	- PWD
	- FPSP
18 May	Travel to Kadavu
	- Visit Health Centres at Vunisea, Naleca and Daviquele
	- Vunisea Hospital
	- Nursing stations at Ravitaki, Soso and Vacalaya; at least one other nursing station at either Nalotu, Gasele or Naqara as logistically feasible
	- Associated village dispensaries as logistically feasible
	- At a minimum, the villages of Tavuki, Nasegai, Dravuwalu and Nakoronawa
29 May	M. Baker and J. Wakerman to Taveuni (team may split, one remaining on Kadavu, depending on Kadavu travel schedule)
30 May	Meet with TCHP team
31 May	Travel to Suva
1 June	Follow up consultation Suva
2 June	Debriefing MOH, AHC
4 June	Depart Suva

5 June	Debrief Canberra
30 June	Draft report
31 July	Final report

7. Team membership

The evaluation team consists of Associate Professor John Wakerman, public health physician, as Team Leader; Ms Mary Baker, health facility planning and design consultant with qualifications in nursing and architecture; Ms Bronwyn Robbins, Task Manager Performance Information and Assessment section of AusAID; and a representative from MOH. At the time of writing arrangements are being finalised to add a health economist to the team to carry out an economic analysis.

8. Team Member's TOR

TOR: Team Leader

The focus of the consultant's input — preparation, fieldwork and report writing — will be on the evaluation of the first and fourth components of KRHP and overall responsibility for ensuring the outputs of the evaluation are successfully completed. It is expected that team members will work as a team and have overlapping responsibilities and areas of activity.

The Team Leader will:

- finalise the issues paper and project TOR;
- carry out appropriate preparation with respect to existing documentation relating to KRHP and associated projects;
- finalise design of the evaluation;
- carry out fieldwork relating to the evaluation as per the project design;
- be responsible for the aide memoire and to the presentation of such at the completion of fieldwork; and
- be responsible for the production of the draft and final evaluation reports.

TOR: Health Facility Planning Consultant

The focus of the consultant's input — fieldwork and report writing — will be on the evaluation of the second and third components of KRHP, namely human resource development and infrastructure activities. Whilst this will be the focus of activity, it does not preclude input into other areas. Indeed it is expected that team members will have overlapping responsibilities and areas of activity.

The consultant will:

- comment on and have input into the issues paper and final project TOR;
- carry out appropriate preparation with respect to existing documentation relating to KRHP and associated projects;
- have input into the design of the evaluation;
- carry out fieldwork relating to the evaluation as per the project design. This will entail direct participation in various evaluation methods specified in the final project TOR;
- contribute to the aide memoir and to the presentation of such at the completion of fieldwork; and
- contribute to the draft and final evaluation reports.

TOR: AusAID team member

The focus of the AusAID team member's input — preparation, fieldwork and report writing — will be on providing the AusAID perspective to evaluation activities, to appropriate reporting format and liaison with other AusAID officers. Whilst this will be the focus of activity, it does not preclude input into other areas. Indeed it is expected that team members will have overlapping responsibilities and areas of activity.

Tasks will include:

- provide advice and guidance on the AusAID requirements of evaluation teams;
- comment on and have input into the issues paper and final project TOR;
- provide advice on relevant AusAID and GOF policies at the time of implementation of KRHP and now;
- assist with the logistics of the field mission;
- assist with liaison between the evaluation team and staff at the AusAID post;
- have input into the design of the evaluation;
- assist with fieldwork relating to the evaluation as per the project design. This will entail direct participation in various evaluation methods specified in the final project TOR;
- comment on the aide memoire prior to presentation;
- contribute to the draft and final evaluation reports as appropriate; and
- organise post-evaluation debriefing.

TOR: Health Economist

The focus of the health economist's input will be on a desktop analysis of data relating to the economic impact and cost-benefit of KRHP. Whilst this will be the focus of activity, it does not preclude input into other areas. Quantitative data will be collected by the field team and transmitted to the health economist, as well as contextual qualitative information.

The health economist will:

- analyse expenditure associated with KRHP;
- analyse staff turnover rates;
- analyse utilisation at different levels of the health system;
- analyse and make comment on the sustainability of additional costs to GOF;
- carry out a cost-benefit analysis of KRHP; and
- provide a written contribution on the above to the draft and final evaluation reports.

9. Documents reviewed

AusAID 1994 Kadavu Sub-Division Rural Health Project, Project Design Document, Canberra

AusAID 1995 Kadavu Sub-Division Rural Health Project, Project Implementation Document ,Canberra

AusAID 1995 Kadavu Sub-Division Rural Health Project, Annual Plan 1996, Canberra

AusAID 1996 Kadavu Sub-Division Rural Health Project, Annual Plan 1997, Canberra

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Kadavu Rural Health Project 1997 Village Health Worker, NCHP Suva

Kolbe T 1999 Taveuni Community Health Project Report No. 8, An Assessment of the Health Status of the Population of Taveuni

Nii-K Plange 1999 Taveuni Community Health Project Draft Report No. 9, Baseline Survey on Community health Needs and Utilization of Health Services USP Suva

Appendix 5: Questionnaire

Policy

To what extent did the project conform to or depart from the relevant AusAID policies at time of implementation?

To what extent was the project consistent with the health policy and strategic planning goals of the GOF at the national and local levels at time of implementation?

Design[1]

1. What was the rationale behind the project? How was the locale chosen?
2. Was the design team composition appropriate?
3. To what extent was the design process participatory? What groups/individuals were consulted?
4. How did this influence the sustainability or otherwise of the project?
5. Was the design timeframe appropriate?
6. How flexible was the design (ability to adapt to changing circumstances)?
7. Did the project design recognise other aid projects with which it might overlap or articulate?
8. Do you have any suggestions about how to improve the design process in relation to participation, flexibility or sustainability?

Achievement of goals and objectives

1. To what extent did the project achieve its stated goal of 'assisting the MOH to further develop an integrated rural health care delivery system in the Kadavu Sub-Division'?
2. Did it meet its more specific purposes of:
   i. Strengthening community participation?
   ii. Providing training to MOH staff and community members?
   iii. Providing improved physical infrastructure, equipment and services?

1 (see QAG template; these questions are for interviews only. Other aspects of design to be assessed from document review)

Impact

1. What was the project's impact, intended and unintended, in the following areas:

   i. infrastructure (see attachment 1);

   ii. financial;

   iii. economic — including service utilisation;

   iv. institutions — NGOs, other sectors, structure for community participation, MOH support, role and status of VHWs;

   v. women; and

   vi. environment.

2. What was the impact on broader policy formulation in the GOF Health sector (including the extent of feedback into GOF planning approaches, the transfer of health management practices to the formal and informal health care systems and how MOH/GOF deals with aid projects)?

Project implementation performance

How would you assess the overall management of the project? The in country project team? The Australian Managing Contractor? Partner Government agencies? Were MOH staff able to deal with the number and range of aid projects at the time?

How could project implementation have been improved?

Sustainability

1. How sustainable were project activities in the following areas:

   i. Financial? (includes salaries, ongoing operational costs of staff and equipment and ongoing physical resource maintenance.)

   ii. Training —

   At Sub-Divisional level, what are current training activities? How are they being assessed for quality and impact?

   At MOH level, is there monitoring, support and appropriate policy framework?

   Are there established training packages for different health professional groups?

   Have these been mainstreamed or institutionalised?

How has FHMRP capacity building assisted MOH in the areas of policy formulation, training program development, monitoring and funding of training activities?

Has training for VHWs improved?

iii. Community participation —

Has there been a shift in the 'ownership' of health activities?

What evidence of this is there?

Are community structures dealing with health active?

What is local perception of the small grants scheme?

2. Did other aid projects contribute positively or negatively to sustainability?

3. Are there strategies for sustaining these sorts of project which need to be documented or explored further?

Transferability

Were there lessons learnt from this project that can be transferred to other locations?

What were the projects strengths?

Its weaknesses?

Infrastructure checklist

There are a number of evaluation issues related to infrastructure. (These are immediately relevant to the implementation of the Taveuni project.)

1. Timing — construction and refurbishment of nursing stations and health centres before the main hospital gives a clear message to consumers about their importance and may assist in the problem of by-passing of peripheral facilities. *Was this an issue? Any other lessons for Taveuni?*

2. Upgrading of peripheral facilities and expectations of consumers need to be linked to appropriate training and community education about upgraded skills e.g. nurse practitioners on Taveuni. *How important is this?*

3. An initial needs assessment with adequate community input is necessary to avoid the overbuilt hospital at Vunisea as reported in the PPER. The PPER also comments that realistic community consultation would have avoided the design faults they have documented. *How relevant is this for future projects?*

4. In the design process, masterplanning as the first stage could be presented to the wider community including church, education, elderly and youth, as well as health service staff. *How useful would this be?*

5. In relation to transferability, there may be a call for clinic/hospital design and housing design templates which meet PWD specifications and which can be adapted to different operating environments. *How useful would templates be?*

6. Capital costs must be associated with adequate recurrent funds to ensure adequate maintenance of facilities. *Was this a problem? How does AusAID/GOF effectively address it?*

7. Transport and communication infrastructure and associated recurrent costs for maintenance are critical to access, and appropriate utilisation and referral patterns. There needs to be clarity about ongoing responsibility for these costs at design phase. *Was this an important issue? How does AusAID/GOF address it?*

8. Adequate time is required for site analysis for infrastructure components. *Was this a problem? Are there any restrictions on time required?*

9. An assessment of the environmental impact of a development should be addressed. *Was this done? What are the barriers to an EIS?*

10. Selection of appropriate equipment in terms of simplicity of operation and ongoing maintenance costs is imperative in order to add to the sustainability of the project. *How appropriate was the equipment chosen? Problems? What can be done?*

Appendix 6: Measurement of community participation

An essential element of Component 1 and to an extent Component 2 of KRHP was community participation in the health sector. Defining, measuring and evaluating community participation is no simple task. The Post-Project Evaluation team adapted and applied a tool originally developed by Susan Rifkin and colleagues which measures a number of indicators of participation in health activities. The Ex-Post Evaluation team applied the same tool in the same locations in order to measure changes over the intervening three years. The reader is referred to the PPER for a detailed description of the tool, method and results.

Tool

The tool assesses participation on a continuum for each of six factors relevant to community participation: needs assessment, organisation, mobilisation of funds, control of funds, mobilisation of labour and management.[1] Each of the six indicators is sub-divided into five levels or values on a continuum:

1. narrow;
2. restricted;
3. fair;
4. open; and
5. excellent.

The results are plotted on a six-spoked graph to allow comparisons between locales and in the same locale over time.

Method

This rapid qualitative assessment method consists of applying the tool to stimulate structured and informal discussion in focus groups. For each indicator, five cards with statements in Fijian were presented to the group. Each statement reflected one of the five levels along the continuum of the indicator. For example, for the indicator 'Organisation' the five statements (presented on cards in Fijian) were:

1. We have no Village Health Committee here (narrow);
2. We have a Village Health Committee but it does not meet (restricted);
3. Our Village Health committee has met once since Christmas (fair);
4. Our Village Health committee has met two or three times since Christmas (open); and
5. Our Village Health committee has met four or more times since Christmas (excellent).

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1 A further three factors used in the PPER assess community perceptions to access to health facilities. These were not measured as the questions used for measuring these indicators were not available to the team.

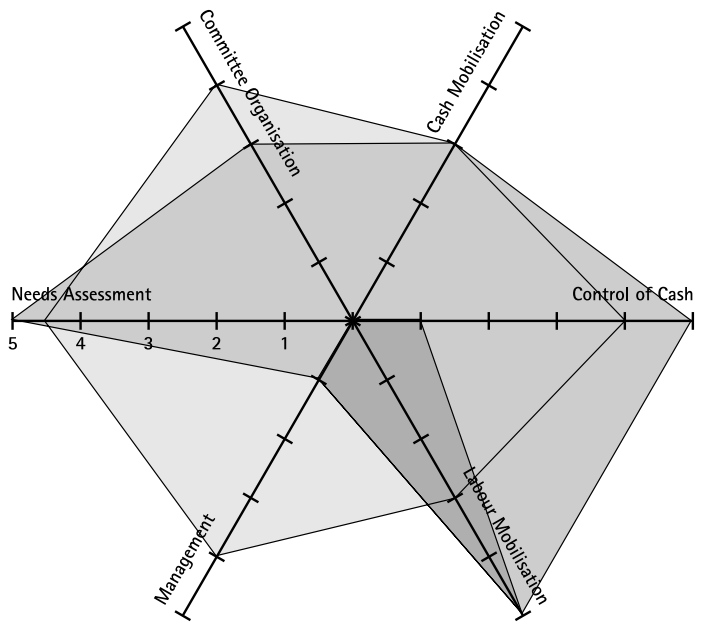
Participants were asked to consider each statement and to select the one (or two) which corresponded most closely to their current experience. This process was repeated for each of the six indicators. The cards were the same cards as used by the Post-Project Evaluation team. The facilitators also measured the number of participants who took part in the focus group in 1997.

Women's focus groups were facilitated by a Fijian woman who had had experience in data collection on the Taveuni Community Health Project and been briefed by the Team Leader of this project on the tool and its use. The two female Australian team members participated in these groups. The youth group was facilitated by the Fijian male member of the team with the Team Leader participating.

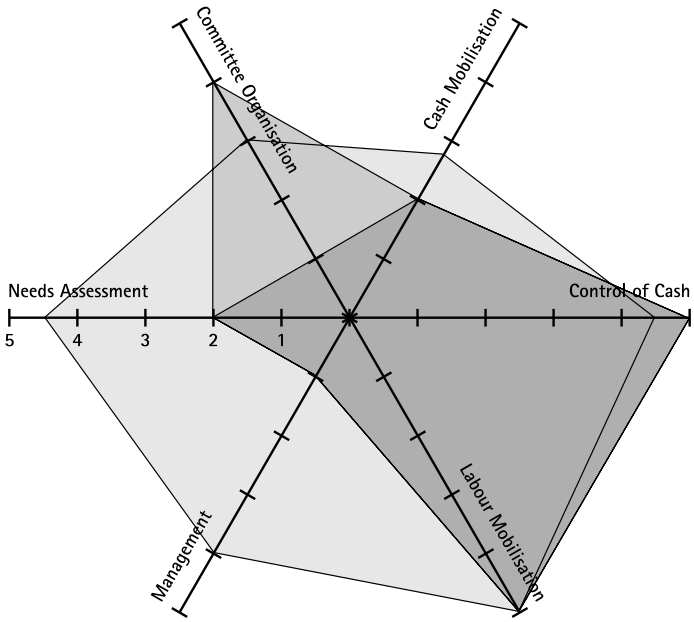
Results

This method was used in five structured focus groups in the same villages as the Post-Project Evaluation team. There were four with women in Tavuki, Nasegai, Dravawalu and Nakoronama, and one with youth (all male) in Dravawalu.

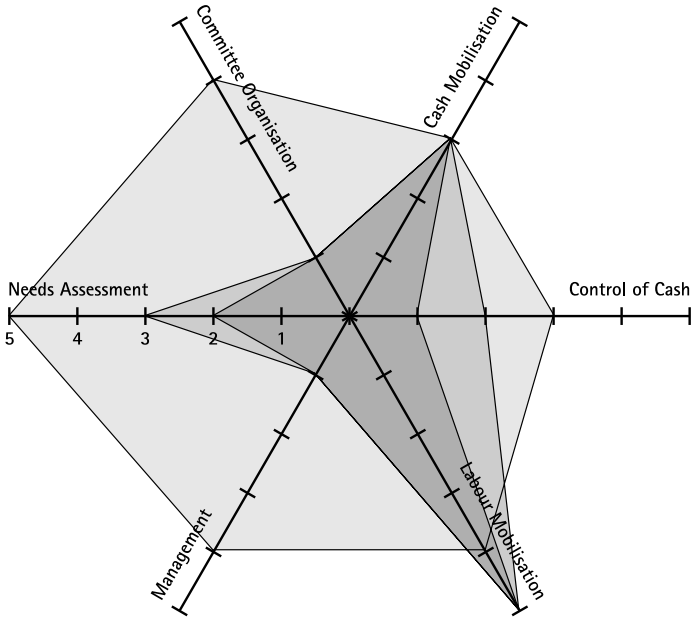
The results are plotted on the following graphs. The graphs indicate the pre-project situation as estimated by the post-project evaluation team (dark shading), the post-project assessment (medium shading) and the ex-post evaluation assessment (lighter shading).



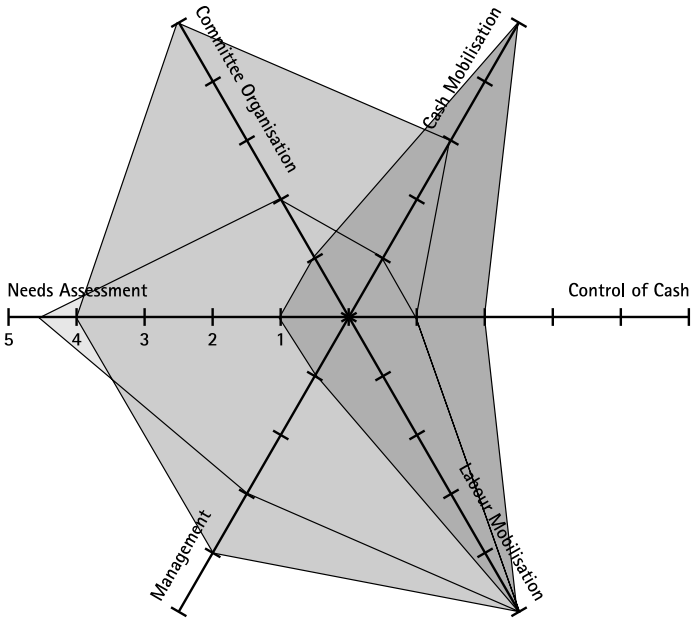
Tavuki Village



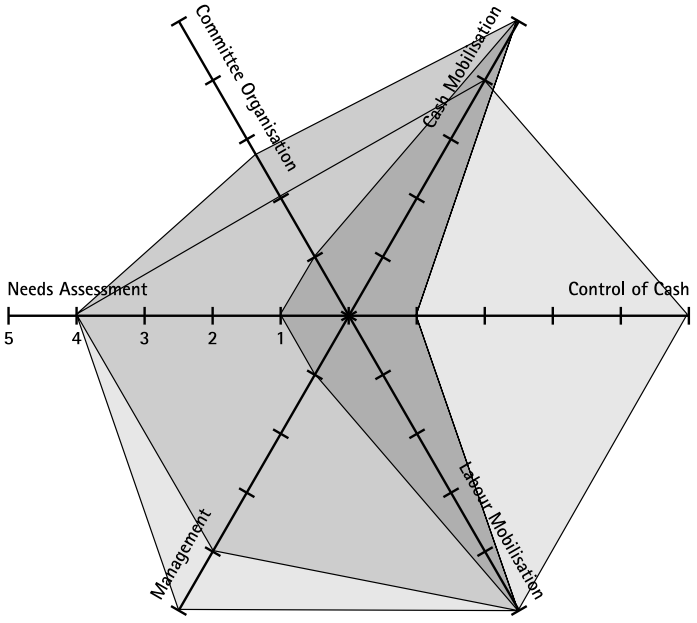
Nasegai 14 Women
All at previous focus group



Nakoronama Village 12 Women
This included three VHWs and three women from the previous focus group



Dravuwalu Village Women's Focus Group
One woman from previous focus group



Dravuwalu Village Youth Focus Group
Seven males aged 19–26; four in previous focus group

Discussion

Generally, the graphs suggest an overall growth in community participation compared to before the project, and a sustained level of community participation in the three years since the Post-Project Evaluation. This is encouraging and consistent with other qualitative data collected which suggests a maintenance of community involvement, albeit varying from place to place.

The level of community input into needs assessment has been sustained or has increased (Nasegai) since 1997.

Village Health Committee activity has been sustained in at least two of the villages. In Nakoronama activity has increased. The health committee is considered to be the two VHWs and *Turaga ni koro* who meet regularly and carry out inspections. In Dravuwalu there appears to be contradictory information which is probably related to methodological and definitional problems discussed below (Limitations section).

Community cash mobilisation has been sustained across the villages assessed. The exception is the Dravuwalu women's group. This results from methodological problems discussed below. We know from the youth group and from discussions with the Ratu that community financial support of health activities is in fact a priority for this village.

Control of funds raised has been sustained or increased (Nakoronama and Dravuwalu). In Nakoronama SSV is strong and involved in fund-raising. In Dravuwalu the *Ratu* chairs the *Tikina* Health Committee and expresses a strong sense of self-sufficiency with respect to health sector activities.

Labour mobilisation has been well sustained in all of the villages assessed.

Management of the local health facility appears to have been increased or maintained (Dravuwalu) at a reasonably high level. There are definitional issues related to 'health facility' which probably account for these changes and interpretation is otherwise difficult (see below).

Limitations

There was considerable initial discussion within the team in relation to framing questions, in Fijian, about the six indicators to be measured in order to not only convey an accurate meaning for each indicator, but also to ensure reliability of responses between villages.

Generally, participants were open with their verbal and non-verbal responses. There were however a number of methodological limitations encountered.

These limitations included: lack of prior notification of the focus group; dominant individuals or village dynamics which inhibited free discussion; definitional issues, particularly in relation to 'Village Health Committee'.

Lack of prior notification and a resultant small number of participants who were involved in the 1997 focus group was thought to have affected the results in the women's group in Dravawalu. There was only one woman in the focus group who had participated in the previous group. The women in the village were also pre-occupied with other activities. Interestingly, in the youth group four out of the seven participants had taken part in the 1997 focus group, and this appears to have compensated for lack of notification.

The issues of a dominant spokesperson and village interpersonal dynamics were also apparent in at least one village. In one focus group, there were tensions between a former VHW and the current VHW. When the new VHW joined the focus group, the former VHW walked out. The facilitators found it difficult after this to draw out other participants. Women looked to the new VHW when questions were posed.

There were also definitional issues relating to the terms used in the assessment. The contradictory results between the two groups in relation to cash mobilisation in Dravawalu is probably a result of inadequate definition of the term to the women's group. The definition of 'Village Health Committee' was problematic. In a number of villages formal Health Committee activity was not high, but equivalent activity was evident. For example, *SSV* was active in one village. In another, the *Turaga ni koro* and VHW were active and consultative through regular village meetings. Thus interpretation of Village Health Committee 'meetings' was not consistent.

Another definitional inconsistency related to the 'management' indicator. In the Post-Project Evaluation, our understanding was that the definition for 'health facility' managed[2] referred to nursing stations and health centres. In our focus groups 'health facility'; could also refer to village dispensaries. This may well explain some of the higher scores for 'management' at Tavuki, Nasegai and Nakoronama villages.

2 For example, the 'narrow' value for the 'management' indicator is expressed as 'We are not involved in managing our local health facility at all'. The 'excellent value' for the same indicator is 'Our Health Committee consults us on managing our local health facility'.

Conclusion

Methods

This tool may well be an effective, rapid means of assessing changes in community participation over time. The limitations summarised above need to be addressed. Involving the same participants as far as possible probably improves reliability of results. Definitional issues need to be detailed and explicit. Definitions of indicators referring to 'Village Health Committees' and 'health facilities' in particular need to be detailed. Lastly, alternative strategies to assist maximal participation in the focus group need to be considered. For example, VHWs may be better interviewed individually outside of the focus group, in order to allow group participants to express themselves freely.

Community Participation

Despite these methodological limitations, there is evidence of an increase in community participation in the health sector on Kadavu since the beginning of the project, and this has been sustained since the project ended. These results are generally consistent with other qualitative data collected.

Appendix 7: Selected mortality, morbidity and utilisation indicators

Selected indicators	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998###	1999	2000
Population										12257	11453	10734	11690	11114	11441	
CBR (per 1000 total popn)										18	7	12	19 (14.9^^)	14	17 (12.9)	
CDR (per 1000 population)										5	4	5 (5.3)	6 (6)	5	7 (6.9)	
CBA (15-44)										2482	2288	2026	2691	2240	2635	
Antenatal bookings (total)										274	283	274	232	167	214	
Antenatal – teenagers										19	27	17	15	15	23	
Antenatal bookings (% CBA)										11.0	12.4	13.5	8.6	7.5	8.1	
CPR (%) (+my calculation)										29 (26.5)	31 (30)	34 (33)	22.5 (22.5)	27 (27)	24 (26.4)	
Pap (number)										69	163	95	202	548*#*	61	
MCH visits													6476	4770	4060	
Deaths <5 y.o.										8	1	12	5	7	3	
Births-health facility/TBA																
Hospital	103	109	109	82	117	109				214	87	79	122	111	114	
Health centre	95	111	104	83	32	35						37	42	36	22	
TBA^^#	49	26	18	17	23	20				10	11	11	10	10	14	
Other													50		45	
MMR (per 1000 live births)		4.1			11.6	6.1						**#	0		0	
Immunisation (%)										88*	92**	174##	100	66.5^^^^	105%	
Diarrhoea										81	49	68	225****	61	70	
ARI (<5)										102	195	169	344*#	249	315	
Malnutrition										82	57	117	154***	90	97	
Diabetes (number)										118	105	117	113	113	88	
Hypertension (number)										228	292	314		227	126	
Cardiac (number)											4	7				

Selected indicators	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Allocation											62134	67278	86000	82100	99400	104029
Actual											63147	90534	103977	118825	117051***#	
Overspend											-1013	-23256	-17977	-36725	-17651	
Utilisation																
Admissions Vunisea	427	521	583	511	623	752		718	491	466	597	685	670*^	868^^^##	854	
Occupancy (%)	23	21	21	19	23	23		27	27	28	30	27				
Av LOS	6.1	4.5	4.1	4.3	4.2	3.5			6	7	5	4				
OPD Vunisea (MO)												5004	5510	5773	6788	
OPD total																
OPD MO (no. MOs)										2018	2623	2288	5608	1875	2499	
OPD district nurse										4047	5894	8079	10791	8406	9915	
OPD VHW										7541	4079	6767	9164	7293	7860	
TOTAL OPD*^*^	14620	15559	14610	13342	12247	14410				13606	12596	17134	25563	17574	20274	
Health Centre inpatients													65		59	

Notes:

Limited data in Annual Report

^^ Excludes births outside of Kadavu — SDMO says that births outside of Kadavu counted as they will return to the island

Increase due to sister with Pap smear training — normally male doctors only and women reluctant to attend

^^# TBAs discouraged from deliveries. Current rates high relative to other areas of Fiji.

**# SDMO says that no maternal deaths since 1996. Only one maternal death in entire Fiji in 1999. MMR has been targeted by MOH.

* Some data of questionable reliability. Coverage for Ravitaki and Daviqele nursing stations was 132 and 295 per cent respectively. See next note.

** As above. Daviqele medical area with 102 per cent. SDMO says that births outside of Kadavu not recorded prior to 1997, but returned to the island, thus understating the denominator.

All three medical areas report coverage > 100 per cent.

^^^^ SDMO thinks this excludes hospital immunisations.

**** SDMO thinks there was over-reporting related to KRHP and increased sensitivity amongst VHWs and nurses.

*# Reported as new episodes, but possibly all presentations recorded (?)

*** All visits, not just new cases.

***# Wages overspent 1090, relieving 5222, travel 795, subsistence and hotel 2779, general stores and incidentals 1228, fuel and oil 3533, rations 2498, power/light/water/refrigeration 168, laundry 304; Revenue: inpatient fees 1071, dental fees 1859 (total revenue 3512)

*^ New Vunisea Hospital opens October 1996.

^^^## Anecdotal evidence that the intention was to increase admissions in order to make a case to MOH for an increased allocation to meet escalating recurrent costs.

^^ These are reported as Vunisea Hospital OPD attendances in PDD, but SDMO thinks they are likely to be community health attendances +/- hospital.

Discussion

There was limited access to health and utilisation data in MOH Suva due to political events at the time of the ex-post evaluation. This table is derived from data collected on Kadavu, largely from Sub-Divisional Annual Reports. The evaluation team also examined records at peripheral facilities and copies of Consolidated Monthly Returns. This allowed opportunity to examine the quality of data reported. Data collection at nurse's stations and health centres is excellent. The quality of data as presented in annual reports is more variable and would seem to vary with different SDMOs. As a result of these limitations, the analysis offered below should be read with caution.

Health status

One would expect to see little or no positive impact on health outcome measures as a result of KRHP at this time. There are several reasons for this. Firstly, health services have a limited impact on health outcomes. The literature reports a proportion which varies from modest (10 to 20 per cent contribution to a health outcome) up to 50 per cent. The contribution of socio-economic determinants appears increasingly significant. Secondly, the timeframe over several years is relatively short to expect an impact on chronic diseases. It should be stated that the reported prevalence of diabetes and hypertension is already relatively low. Lastly, the reliability of the data presented here is probably insufficient to detect small changes. On the contrary, an enhancement in health service delivery often leads to increased diagnosis and reporting of conditions, which results in apparently poorer health statistics.

There is some variability in Crude Birth Rates (CBR) and Crude Death Rates (CDR), especially CBR, but no particular trend evident. The variability is probably not unexpected — numbers are relatively small. Fluctuations in CBR may also be due to data collection differences, particularly the inclusion or exclusion of births to Kadavuans outside of Kadavu. Maternal mortality has been targeted by MOH nationally and there has been no maternal death reported from Kadavu since 1996. There was only one maternal death in the Fiji Islands in 1999.

In the table are extracted data relating to diarrhoeal disease, respiratory infection (ARI), malnutrition, diabetes, hypertension and cardiac disease. The first three are predominantly childhood problems in this setting, and the latter three are mainly adult diseases. The improvements in water supply and sanitation would be expected to have an effect on rates of diarrhoeal disease. Examination of the data in the table shows a sharp rise in cases presenting with diarrhoea in 1997, against a background rate of 50 to 80 cases per year between 1994 and 1999, with no discernible pattern. The current SDMO ascribed the sharp rise in 1997 to

increased awareness of the need to report and possibly over-reporting. There was a similar sharp rise in presentations with ARI and malnutrition. There may be a definitional problem here with all visits, not just new cases being recorded. A higher rate of ARI continued to be reported after 1997.

The clinic-based prevalence of hypertension rose steadily from 1.8 per cent in 1994 to 2.9 per cent in 1996. It then declined to 2.04 per cent in 1998 and 1.1 per centin 1999. Whilst reliability of denominators (whole population) and the relatively small numerators (cases reported) isn't assured, this trend may well show the effect of an enhanced service in detecting new cases of hypertension during the life of the project, and then diminishing after the end of the project. Increased health service capacity for diagnosing new cases during the life of the project is not supported by examination of diabetes cases. A similar pattern is not discernible with the clinic-based prevalence of diabetes. This ranged between 0.91 to 1.01 per cent between 1994 and 1998, then dropping to 0.77 per cent in 1999.

Health service utilisation

Inappropriate utilisation of the health system throughout Fiji is a common problem. Community health education, appropriate VHW training, improved peripheral infrastructure and outreach clinics are all potentially effective strategies to ensure appropriate utilisation patterns.

Overall utilisation of both hospital and peripheral facilities on Kadavu shows an upward trend. From 1994 to 1999 hospital admissions rose from 466 to 854 and outpatient attendances from 13,606 to 20,274 per annum with no significant total population growth.

Changes in immunisation coverage are very difficult to interpret because of denominator problems. This was explained by the current SDMO as due to non-inclusion of infants born outside Kadavu in the denominator, but returning and subsequent inclusion in the numerator. There were a number of medical areas reporting > 100 per cent coverage. This re-inforces the need to establish and maintain a clear monitoring framework in order to measure the impact of health service interventions.

A decreasing proportion of births managed by traditional birth attendants (TBAs) and an increasing proportion of births in health facilities reflects MOH policy. The number of antenatal bookings as a proportion of women of child-bearing age (CBA) has increased from slightly between 1994 (11 per cent) and 1996 (13.5 per cent), and subsequently declined to 8.1 per cent in 1999. This may be a valid trend reflecting increased obstetric training for nurses and doctors during the life of the project and subsequent activity on this area. Or it

may merely reflect variability in defining the denominator population (CBA). Uptake of contraception (CPR) shows a similar trend with a slight increase from 26.5 per cent in 1994 to 33 per cent in 1996, and then leveling back down to 26 per cent in 1999.

Variable numbers of Pap smears per year were dependent on the small number of practitioners carrying out this procedure. The alarmingly low rate of Pap smears reflects the fact that only doctors and nurse practitioners carry out Pap smears. In addition, most doctors are male and this discourages many women from seeking Pap smears. The very sharp increase of Pap smears in 1998, and subsequent drop, was due to the posting to Vunisea Hospital, and subsequent transfer, of a nurse practitioner with Pap smear training.

Conclusion

In conclusion, there has been a significant increase in inpatient and outpatient utilisation on Kadavu since 1994. Outpatient attendances have particularly shown an upward trend during and after KRHP. There is some evidence which suggests increased women's health activity during the life of the project. Health status data availability was limited and the data examined were of variable quality. There was no discernible decrease in diarrhoeal cases as might be expected with the improvements in water supply and sanitation through KRHP. There is a suggestion that KRHP resulted in improved detection of hypertension during the life of the project, although the relatively small numbers and lack of a well established monitoring framework preclude any definite conclusions. This re-inforces the need to establish a monitoring and evaluation framework at the commencement of such projects, which utilises existing data collection systems as far as possible, and measures indicators appropriate to the intervention.

Appendix 8: Site visits and infrastructure evaluation

Introduction

This appendix documents the site visits during the field component of the evaluation. For each section of the appendix — Nursing Stations, Vunisea Hospital (the largest infrastructure component), maintenance and engineering issues, equipment and environmental issues — the contribution of the project and issues raised through consultation and observation are noted and discussed. These are then analysed and recommendations made.

The team visited all sites which had had KRHP infrastructure improvements except Nalotu. Generally, the building works associated with the project have proven to be very successful and the choice of materials and structural design have allowed the buildings to withstand cyclonic weather patterns since construction. The buildings were found to be in overall reasonable working order. The remodeling and additions to the various centres has enhanced the provision of health services. For example, clinical activity has been improved through the addition of an appropriate birthing room at the Vacaleya Nursing Station. Additional consultation rooms and the provision of ablution facilities in a number of stations have improved their amenity. Anecdotally, the provision of improved housing to attract staff has assisted in recruitment and the sustainability of project community health gains.

Nursing Stations and Health Centres

In summary, the KRHP infrastructure provision for Nursing Stations and Health Centres was as follows:

Ravitaki Nursing Station	New nursing station; upgrade nurse's flat; improve water supply.
Daviqele Health Centre	Remodel existing health centre; one new nurse's house; upgrade nurse's flat; upgrade existing services.
Soso Nursing Station	Remodel existing nursing station; new Nurse's house; upgrade existing house; Provide one boat; provide rainwater collection.
Vacaleya Nursing Station	New nursing station; new nurse's house; provide water supply and sanitation.

Gasele Nursing Station	Remodel existing nursing station; upgrade existing nurse's house; improve drainage.
Naleca Health Centre	Remodel existing health centre; new house for nurse; upgrade two existing houses; provide one boat; upgrade water supply; drainage and sanitation.
Nalotu Nursing Station	Remodel existing nursing station; upgrade nurse's house; one new nurse's house.

KRHP also renovated and converted the old hospital building into the Vunisea Health Centre, including some hospital administration offices. This resulted in much needed space for public health activities, particularly Maternal and Child Health. The large space adjacent to the open waiting area provides the hospital with a useful meeting room, not only for maternal and child health activities but also for staff development and as a visitors' meeting room. A lack of funds available for staff development limits utilisation of this space for training purposes.

Observations and discussions with the users of the peripheral facilities revealed numerous examples of maintenance problems with the Nursing Stations and Health Centres. Solar power was not operating in all but one centre. Whilst water supply was generally adequate, at some centres rain tanks had deteriorated with rust and were leaking. Septic systems were working well and toilets flushing in all centres except Ravitaki, where stormwater was draining into the system and resultant seepage of the septic system was observed. There was also a lack of adequate drainage at the rear of the house at Ravitaki causing flooding up to the level of the kitchen floor when it rained.

The environment at Soso is more humid as it is set back from the coast amongst the mangroves, and this caused considerable mould on all the walls, which had not been cleaned. There were also a number of repairs and maintenance required here. For example, all taps were leaking and a drainage pipe had broken in a storm.

At Gasele, the ceiling in the nurse's house was broken and leaking occurred from the roof where the solar panel had been installed. There was no drainage outlet in the shower, the toilet floor needed repair and one toilet was blocked. The cooking flue was badly rusted and needed replacing. This house could have been categorised at project design stage for more extensive refurbishment or even replacement.

In recognition of some of the maintenance problems described, a team from PWD visited in September 1999. Documentation from MOH in Suva showed details of the extent of work that needed to be carried out. Work to the value of

funds available from the project was completed. However most of the repairs and maintenance required have not been completed.

These examples highlight the lack of ongoing maintenance of physical infrastructure provided through the project which needs to be urgently addressed (see 3.3, 4.4 and 5.5 in main report).

Vunisea Hospital

The main infrastructure development was the construction of a new 22 bed hospital and five staff houses at Vunisea.

Facility planning and design

Issues relating to the reason for the size of the new hospital are outlined in section 3.3 of this report. Although the bed numbers for the proposed new hospital were negotiated down from a proposed 31 to 22, the need for a hospital of this size is questionable considering that the bed occupancy rate between 1985 and 1996 was, on average, 24 per cent. Since 1996 bed occupancy in the new hospital has not risen above 30 per cent.

As a result of the size and internal layout of the hospital, nurses working in the hospital complain of poor visual access to the patients from the main nurses' station. Critical comments related to the number of rooms and time taken for staff to move between ancillary rooms and patient bed areas. In addition, the internal design structure in the space above the main corridor causes cleaning problems.

The size of the building has also resulted in a burden on the administration because MOH have not been able to provide appropriate increases in unestablished staffing levels. The two cleaners for the hospital don't have enough time to clean both the hospital and the health centre (which is presently being done by nursing staff). Inadequate power supply presents staff with workplace difficulties and lack of security (see below). There is no maintenance person on staff.

Discussions with a number of senior hospital staff and observations highlighted a number of facility planning issues.

- The location, design and size of some rooms in the hospital were inappropriate. For example the size and layout of the birthing room; the location of the laboratory and X-ray department; and the need for more ablution facilities with wheelchair access.

- The architectural design of the connection between the Vunisea Health Centre and Vunisea Hospital has been such that the outpatient waiting area was not able to be used in inclement weather. Winds blew rain in and across this area. PWD subsequently increased overhangs on the verandahs to prevent rain infiltration.
- Staff criticised aspects of the design in relation to access and egress at night which have security implications for them.
- Some unsatisfactory design features of furniture and fittings could have been avoided. For example, staff to patient visibility from the main nurses' station is restricted. There is a lack of doors on cupboards in both the nurses' station and kitchen areas.
- Although the position of the mortuary is not ideally situated under the birthing suite and visible from the patient verandah, the fact that there is a mortuary is well received because relatives now have time to travel in to the hospital to receive their 'own' and take them back to their village.

Community and staff consultation

Although the architects did consult with MOH staff, operational difficulties related to internal planning as listed above could have been avoided through effective consultation about the hospital plan with hospital personnel on Kadavu. The SDMO at the time reported that his lack of understanding of architectural plans caused him difficulty in responding to the architects. He felt 'pressure of time to comment on plans'. Senior nursing staff who were present during the project felt that they had not been adequately involved in the planning and that 'decisions were made in Suva with only SDMO involved in design. We were only showed the plan once and we didn't get shown how to operate hospital equipment'. The evaluation team recommends that in future projects more time is spent at project design stage addressing cultural and facility design requirements.

Relative accommodation

Villages are isolated and the predominant form of transport on the island is by boat. This results in long travel times and long waiting periods for relatives. The issue of accommodation for relatives of inpatients could have been investigated further to produce greater flexibility in design. This may have allowed for a smaller number of inpatient beds directly accessed by nursing staff and the inclusion of offset relative accommodation, which could also be utilised for

inpatients during epidemics and other times of high occupancy. It was reported that relatives often use empty patient beds. This poses an potential infection control problem for nursing staff in terms of cross-infection.

Maintenance, engineering and equipment

Vunisea generator

The main generator at Vunisea was to be upgraded under the MOU between GOA and GOF. It was not and this is a serious impediment to the provision of health services by the hospital. With the resultant necessity for the hospital to be without power and light between the hours of 1pm and 5pm, and 1am and 5am, there are serious implications on workplace health and safety issues. The use of the 'essential power' (standby) generator at the hospital at times when power should ordinarily be supplied by the main generator, puts pressure on the hospital budget in running the generator. Additionally, the hospital generator has not been designed to provide the required power for some equipment such as the X-ray unit. As a result, when the main generator is not operating, performing X-rays is delayed.

Solar systems

Of particular concern is the lack of functioning solar systems, which were installed by the project. As a result, most nursing stations were without reliable power or lighting. There are two factors to be addressed. The first is a lack of staff knowledge and training predominantly in battery maintenance. The second factor is that even with functioning solar power systems, there is insufficient capacity of the nursing station solar panels to provide for their needs, which include powering a radio, which is important in an isolated setting. The evaluation team recommends that in future projects only power systems which have been proven to operate adequately and simply should be used in developing countries. An ongoing maintenance training program for staff is also essential.

General maintenance

General maintenance at the Vunisea Hospital, the health centres and nurses stations is delayed because of the lack of provision of services from PWD. In the absence of appropriately trained PWD staff funded by MOH on Kadavu, maintenance is carried out by PWD staff from Suva.

For example, discussions with the Environmental Health Officer and observations at the hospital revealed that the public toilet leaks. Also, the

bottom floor of the hospital floods because the guttering has no down pipe and the soakage pit of stones is inadequate, causing overflows. Maintaining a dry environment was a recurrent problem for staff, who have to deal with this situation whilst waiting for PWD staff to arrive from Suva.

This is not only a costly exercise, but causes long delays. PWD have approximately 20 staff on Kadavu who maintain roads, electricity and water supply, but hospital maintenance is the responsibility of staff in Suva. One interesting perception of locals was that the hospital was built by Minsons, not PWD, and that Minsons should maintain the building. Discussion revealed that: 'Before the project maintenance on the Vunisea health centre (sic) was done by PWD for free. Now the hospital has to pay PWD and the process is very long.' Pre-project, a three year maintenance program was in place. This does not occur now, because of a stated lack of funds.

Ideally, a PWD officer would have been involved from project design stage through implementation, with the view to continuing as a local maintenance person after completion. A maintenance person for the hospital and other MOH facilities is required as a matter of urgency.

Equipment

The main issues in relation to equipment are maintenance and suitability. Equipment at the Health Centres and Nursing Stations such as gas refrigerators and sterilizers were generally operational and well maintained. The main problem for these villages is the maintenance of solar power systems (see above).

The main sterilizer at Vunisea Hospital was not operational at the time of the field visit and staff were waiting for the CWM Biomedical Engineering Officer. No hospital staff knew how to maintain this vital piece of equipment.

Comments from the radiographer related to five issues:

1. The 240 volt X-ray machine can't operate off the 'hospital' generator due to insufficient capacity;
2. The X-ray table is not centering and is rusting;
3. The X-ray room is not air-conditioned and as a result humidity is causing rusting of equipment;
4. The portable X-ray machine is not working; and
5. The hospital needs an X-ray hopper for unexposed film as humidity causes the films to stick together in the present storage system.

The installation of equipment should be accompanied by a follow-up visit from the manufacturer to ensure that all equipment is operational according to instructions. Staff require ongoing training in the routine maintenance and operation of equipment. The production of maintenance procedures and guidelines was an expected output of the project which was not realised, but still should be.

Boats

KRHP provided three boats: one for Vunisea Hospital, one for Soso Nursing Station and one for Naleca Health Centre. Of the three boats provided by the project, only one was operating during the field visit; one was being repaired and one was said to have been lost in cyclonic conditions. Nurses rely on other boats and the availability of drivers locally. Whilst every Nursing Station has a fuel ration, boat owners are now also asking for cash payment for their time, not just replacement fuel. This restricts outreach and emergency visits from Nursing Stations and Health Centres. Health service transport is a vital access issue. Future project design needs to address the formulation of policy and procedures for funding and maintaining boats and other vehicles.

Environment

Sanitation and water supply

The project implemented a very successful small grants scheme of $150,000 over a period of three years. The Fiji Government Rural Water Supply Fund allocated two-thirds of the funds required for projects where the village raises one-third of the total cost. This funding was used extensively in the improvement of sanitation and water supply on Kadavu (see Table 3 p 14). Many villages have installed flush toilets. Septic systems were mostly working well.

The project greatly assisted villages with the installation of piping and tanks for the delivery of water from springs. This has enabled people to have constant fresh water and appeared to be operating well. Further use of tanks at the main hospital would have been beneficial as it was reported that the hospital had run out of water at one point in time. They have requested guttering to catch roof water into rain tanks. This is a sensible request.

Siting and access

The siting of all the health facilities and housing has been well addressed in the project. However access around the island remains a constant concern with the cost of fuel and problems of availability and maintenance of boats.

At some of the Nursing Stations there is a need to develop made paths from near the waters edge to the facility. A greater allocation of funds for civil works could have contributed to the overall sustainability. The villages are attempting to develop small groundwork projects which will assist with access problems.

Waste management

Disposal of clinical waste at the Hospital is by incineration and subsequent burial. Kitchen waste is dumped into two disposal pits at the end of the hospital. The siting of the incinerator adjacent to the Vunisea Health Centre has posed a problem. The incinerator is lit almost every day. The Environmental Health Officer suggested that it should be at the other end of the hospital because winds are predominantly from the south and smoke is blown into the hospital. This is partly due to the flue not being high enough. The top of the flue is below the level of the offices.

Although progress has been made in the containment of pigs in pens around the island, it was observed that some of these were situated on the water's edge which may lead to pollution of the waterway and future health problems.

The evaluation team recommends that more time is spent in understanding the environmental systems of potential project sites during the project pre-feasibility/design stage.

Appendix 9: Cost-effectiveness analysis

This appendix undertakes a cost effectiveness evaluation of the project in the context of the Ministry of Health's expenditures in Kadavu. It is based on data gathered from the Ministry of Health in Suva and Kadavu.

The cost effectiveness analysis below shows that both the Australian project expenditures and the Fiji Ministry of Health expenditures on Kadavu are cost effective. However, this conclusion should be considered in the context of a lack of good quality data for cost effectiveness analysis.

Cost effectiveness analysis[1] is intended to assist in comparing the unit cost of a project with alternative uses of that project's resources. In this analysis comparisons are made with similar health subdivisions and over time.

The Australian contribution to the project cost was $A7,314,673. Cost effectiveness analysis can most easily examine this expenditure in relation to its health coverage. The unit cost of coverage can be calculated on the basis of the number of population served, the beds provided, the health staff supported with infrastructure, the hospital admissions, or outpatients in Kadavu.

The Australian contribution is around $A332,500 per hospital bed, $A221,660 per nurse and doctor, $A640 per Kadavu inhabitant, $A430 per hospital admission over 20 years or $A18 per outpatient seen by medical staff or village health workers over 20 years. Ideally this would be compared with other uses of the resources such as hospitals, training and community development projects on other Fijian Islands. Unfortunately data for these comparisons was not available. However, it can be concluded that the cost of coverage is not unduly high by Australian and international standards.

Ideally cost effectiveness should be focussed on outcomes as well as coverage (outputs). Outcomes include calculating the cost per life saved, and illness avoided or ameliorated. Unfortunately the data needed to make this analysis is incomplete. There are only around 150 deaths per annum on Kadavu and

1 Cost-effectiveness analysis estimates the unit cost of providing an output (eg cost per outpatient) or outcome (eg cost per life saved). Cost-effectiveness "will determine whether the inputs are being converted into the outputs at the least possible cost, or at a level that is acceptable either in relative or comparative terms" [Central Planning Office (1990) *Cost Effectiveness Analysis as a Tool for Project Evaluation* Ministry of Finance and Economic Planning, Republic of Fiji, Project Planning Handbook No. 6, Suva, p 3]. Cost-effectiveness is commonly used to evaluate health projects because while economic values of costs are typically readily available, economic values of benefits are not. Therefore ratios of physical benefits (eg reduced morbidity and mortality) to economic or financial costs are used to benchmark projects against alternative projects, historical performance (with versus without project) or external standards (e.g. national averages, government targets).

problems of statistical quality and inter-island immigration mean that the yearly totals vary as much as the project's impact on reducing deaths. This means it is very difficult to determine how much change is due to the project, how much would have happened anyway and how much is due to measurement problems.

However, accepting the above problems, examination of the table below suggests that from the mid-1980s to the early-1990s there was a drop from 250 to 220 deaths per annum. From the early to the late-1990s it appears that there was a drop in deaths per annum from 220 to 150. Therefore the fall in deaths has been greater in the post-project period than before it (70 versus 30 deaths per annum). This suggests, in an inexact way and without detailed analysis of confounders, that the project has resulted in a saving of 40 lives per annum above the previous declining trend (70-30 lives). Over 20 years this is 800 lives and gives a cost per life saved of $A9,100. This would appear to be a modest cost compared with the value of a human life.[2]

Kadavu number of deaths

1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
247	246	231	182	172	164	na	145	220	221	80	129	174	156	148

Source: Ministry of Health records

Unfortunately data on the incidence of illness on Kadavu was not sufficient to for its inclusion in the calculation of cost effectiveness ratios.

Turning to the cost effectiveness impact of the project on the Fiji Ministry of Health expenditures on Kadavu, it is possible to make some comparisons with other subdivisions[3]. These show that Kadavu's cost effectiveness is similar to other remote subdivisions.

Firstly examining the cost of coverage (output), the per capita health expenditure on Kadavu has risen to $F57 per person in 1999. Of this 72 per cent is spent on established (permanent) staff, principally the two to four doctors and around 20 nurses and dental staff. Only about 10 per cent is spent on operational consumables and services (about the same as paid in tax).

2 International studies of the value of a human life (in questionnaire surveys of people's willingness to pay for extra life) have produced values as high as US$20 million. For studies of how much people actually do pay for extra life (via air bags in cars or less risky employment) values between US$7 and 3 million are typical. *The Economist*, 3 June 2000, p 92.

3 The Lakeba subdivision with 10,000 people distributed over 16 inhabited islands and Taveuni with 14,000 people on a rugged island are of a similar size and have similar transport and communication problems to Kadavu (12,000 people).

Health expenditure in Kadavu, per capita, $F1000s

	1996	1997	1998	1999
Established staff	33.22	34.04	38.97	40.93
Unestablished staff	2.76	4.87	5.63	5.60
Travel and communications	1.62	2.23	2.32	1.60
Maintenance and operations	0.30	0.99	1.25	1.16
Purchase of goods and services	2.58	2.72	2.78	2.72
VAT	4.05	4.49	5.10	5.20
Total	44.52	49.34	56.05	57.21

Source: Ministry of Health records

When Kadavu subdivision is compared with Taveuni and Lakeba it is clear that the per capita expenditures are within the norm for the more remote subdivisions as are the increases over time. The three subdivision's per capita health expenditures are remarkably similar. This suggests that the AusAID funded project has not reduced the cost effectiveness of MOH expenditures for health coverage on Kadavu.

Total health expenditure, per capita, $F

	1996	1997	1998	1999
Kadavu	45	49	56	57
Taveuni	44	46	51	na
Lakeba	32	62	70	na

Source: Ministry of Health records

Looking at the three hospitals (Vunisea in Kadavu, Waiyevo in Taveuni, Lakeba in Lakeba) there is more variation between the subdivisions.

Total health expenditure (including non-hospital health expenditure) per hospital bed in Lakeba is substantially higher. This may be because Lakeba is the smallest hospital (12 beds) and the subdivision has a smaller second hospital, which is not included in the hospital bed numbers but is in the total expenditure. The Waiyevo hospital has the lowest cost per bed. This is because it has 34 beds compared to Vunisea's 22 beds in the new hospital constructed by the project (the previous hospital had 31 beds). The cost effectiveness of maintaining beds in the Vunisea hospital appears to be at a normal level for a remote area.

Total health expenditure per hospital bed, $F

	1996	1997	1998	1999
Vunisea	21,723	26,215	28,317	29,754
Waiyevo	18,164	19,589	20,853	na
Lakeba	26,893	50,153	58,794	na

Source: Ministry of Health records

Total health expenditure (including non-hospital expenditure) per hospital admission in Lakeba is substantially more expensive. This may be because Lakeba has a small second hospital, which is not included in the hospital admissions but is in the total expenditure. The cost effectiveness of treating patients in the Vunisea hospital was only 11 per cent higher than for Waiyevo hospital in 1998 and the difference has been reducing. Vunisea's expenditure per hospital inpatient appears to be at a normal level for a remote area.

Total health expenditure per hospital admission, $F

	1996	1997	1998	1999
Vunisea	698	861	718	766
Waiyevo	333	646	646	na
Lakeba	1,204	1,881	2,344	na

Source: Ministry of Health records

A major impact of the project was to reduce the number of beds at the Vunisea hospital. This should have improved the efficiency of bed use. Unfortunately, data on hospital utilisation at Vunisea was not available for the period after 1996. The new hospital was opened in October 1996. Given that admissions have increased it is likely that the proportion of beds occupied would also have increased. This increased occupancy suggests a more intensive and efficient use of hospital resources, particularly as average length of stay has fallen since 1991.

Vunisea Hospital Utilisation

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Admissions	427	521	583	511	623	752	295	718	491	466	597	685	670	868	854
Occupancy, %	23	21	21	19	23	23	19	27	27	28	30	27			
Av. LOS	6.1	4.5	4.1	4.3	4.2	3.5	7	5	6	7	5	4			

Source: Ministry of Health records
Note: Occupancy is the average proportion of hospital beds occupied by inpatients. LOS is length of stay: the average number of days an inpatient occupies a bed.

Comparing occupancy rates with the other hospitals shows that Vunisea hospital is within the efficiency norm for a remote hospital. Nadi hospital's higher occupancy rate gives an interesting comparison with a mainstream sub-divisional hospital. Remote hospitals serving much smaller populations cannot be expected to match the occupancy rate of Nadi because being larger, Nadi is less exposed to sharp rises in demand (occupancy rates are annual averages but illness often come in epidemics) and has better access to other hospitals for overflow patients. Therefore average and total capacity can be closer.

Hospital occupancy rate, per cent

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Vunisea	23	19	27	27	28	30	27	na	na
Lakeba	na	na	37	35	23	21	30	33	28
Waiyevo	na	na	na	na	na	na	na	26	40
Nadi	72	74	44	54	58	na	na	na	na

Source: Ministry of Health records

Length of stay gives a measure of possible over-servicing. It is clear that, relative to other Fijian hospitals examined, Vunisea is within the norm for length of stay and is efficiently managing patient load.

Hospital inpatient average length of stay, days

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Vunisea	4	7	5	6	7	5	4	na	na	na
Lakeba	na	na	5	4	5	4	4	5	4	na
Waiyevo	na	na	na	na	na	na	na	4	3	na
Nadi	4	4	3	4	4	na	na	na	na	na

Source: Ministry of Health records

Hospital inpatient average daily bed state measures the number of occupied beds. It gives an indication of the size of the hospital. Efficient patient management would reduce the average bed state in order ensure free beds are available for emergencies and epidemics.

Hospital inpatient average daily bed state, number of occupied beds

	1990	1991	1992	1993	1994	1995	1996	1997	1998
Vunisea	na	na	na	na	8	na	na	na	na
Lakeba	na	na	4	4	3	3	4	4	na
Waiyevo	na	na	na	na	na	na	na	11	12
Nadi	21	21	13	16	17	na	na	na	na

Source: Ministry of Health records

The Vunisea hospital is cost efficient in its treatment of hospital outpatients in comparison with Lakeba.

Total health expenditure per hospital outpatient, $F

	1996	1997	1998	1999
Vunisea	96	105	108	96
Lakeba	42	88	91	na

Source: Ministry of Health records

The Kadavu subdivision is cost efficient in its treatment of total outpatients in comparison with Taveuni.

Total health expenditure per subdivision outpatient, $F

	1996	1997	1998	1999
Kadavu	29	32	35	34
Taveuni	na	27	24	na

Source: Ministry of Health records

The cost effectiveness analysis here supports the conclusion that both the AusAID project expenditures and the Fiji Ministry of Health's Kadavu expenditures are cost effective compared to similar health subdivisions in Fiji.

Recognising limitations in data quality and availability, the cost effectiveness analysis supports the decision to undertake the project and the level of resources committed to its outcomes.

Appendix 10: Cost-benefit analysis

Introduction

The evaluation team's terms of reference included an evaluation of economic impact of the KRHP. Additionally AusAID's AusGUIDElines no 14 'Preparing project ex-post evaluation reports' suggests that economic internal rate of return analysis (cost benefit analysis) should be undertaken as part of ex-post evaluation reports.

A cost benefit analysis (CBA) of the project is provided in this appendix. However, due to a lack of relevant data, many of the calculations below are based on informed assumptions1 regarding much key data for Kadavu. Therefore the results given below should be considered hypothetical. However, they do give a reasonable approximation of the likely value of the project's benefits and costs and support the conclusion that the project's impact on the welfare of Fijian society has been positive

The AusGUIDElines number 14 'Preparing project ex-post evaluation reports' suggests that the methodology for the economic internal rate of return (EIRR) computation should generally follow the same approach as the project design document or appraisal to permit ready comparison between the project economic performance at the two times. However, no cost benefit analysis has previously been undertaken for this project. This is unfortunately typical for health projects. There is a widely held view that cost benefit analysis is unsuitable or impractical for health projects. The cost benefit analysis below clearly demonstrates that cost benefit analysis for health projects is relatively straightforward. It is also appropriate because health projects allocate society's resources and should be accountable to donors and recipients for the costs and benefits of that resource use. Cost benefit analysis is a robust accountability methodology.

It is hoped that the cost benefit analysis given here can assist in producing a template for future economic analysis of health projects funded by AusAID, where attention to quality and availability of data can be addressed from design stage.

Cost-benefit analysis

Cost-benefit analysis is used to determine the project's impact on the welfare of society, in this case Fiji. It does this by estimating, and aggregating over time,

1 The AusGUIDElines 'Preparing project ex-Post evaluation reports' suggests that a high degree of precision may not be either necessary or feasible because of data and time constraints.

the economic (social) values of the project's costs and benefits. These costs and benefits are compared (using net present value, internal rate of return, or cost-benefit ratio) to determine the net impact of the project.

In logframe terms the cost benefit analysis needs to identify:

- the inputs (activities) and value them as the project's costs. These are primarily the opportunity costs associated with land, labour and materials;
- the outputs which are capital goods (infrastructure) and can typically be valued by prices in capital markets (eg rents, house prices, etc). In this project these are the hospital, health centres, dispensaries, houses, toilets, water supply infrastructure, fencing, vehicle and boats;
- the outcomes which are the uses of the outputs (infrastructure). These include immunisation coverage, inpatients treated, out-patients treated, drugs dispensed, medical staff housed, consumption of clean water, use of toilets, numbers of animals excluded, numbers of patients transported, villages visited by medical staff. For example, project staff have pointed to earlier presentation of pregnant mothers for antenatal booking and increasing numbers of pre-schoolers seen as examples of health centre successes[2]; and
- the purpose which is the result of the use (outcome) of the project outputs. This is improved health as measured by lives saved and illness avoided and hence the value of these additional human resources to society.

It is important to recognise that because each level produces the next, if all levels were valued there could be double counting. An example would be including the value of the buildings constructed (output) and the rental accommodation service provided (outcome). This analysis suggests that benefits be measured at the level of impact on improved health.

Outputs and outcomes in Kadavu Rural Health Project

Output	Outcome
Hospital - 22 beds - equipment and furniture	• Inpatients, number • Operations, number and type
Health centres and nursing stations - 1 new, 3 remodeled nursing stations - 1 new health centre - equipment and furniture	• Outpatients, number
Houses - 9 new, 6 upgraded houses	• Medical staff accommodated, number

2 Kadavu Sub-Division Rural Health Project (1996). *Annual Plan 1997*. Government of Fiji, Suva.

Outputs and outcomes in Kadavu Rural Health Project continued

Dispensaries - equipment and furniture ($10,000)	• Cases treated, number
Water supply	• Water consumed, kilolitres
Training - Nurses - medical officers - 100 VHW and VEW	• Skills learnt (increased productivity)
Toilets	• Waste disposed, kilolitres
Fencing	• Animals excluded, number
Car and boats	• Patients transported, number

Community development projects

Project Type	Villages no.	Type of Improvements
Sanitation	40	Water-seal toilet moulds provided to each district. 576 toilets constructed in villages and schools.
Water supply	39	Improved catchments, storage tanks and piped delivery of water.
Dispensaries	36	Communal primary health care facilities in villages. Basic equipment and medications. Working base for VHWs.
Animal control	8	Reduction in pigs, cattle and their associate pollution and insects within village and school boundaries.
Drainage	3	Reducing pooling of water and mosquito breeding in low-lying coastal villages.
Kitchens	1	Model kitchens constructed to illustrate basic building hygiene standards.
Other projects	74*	Village clean-up days and vector control efforts to reduce opportunities for the transmission of Dengue and other disease agents.

* All 74 villages conducted small unfunded projects.
Source: Kadavu Sub-Division Rural Health Project, Project Completion Report, 1997, p 16

In health projects the cost side is typically quite clear. Market prices of the inputs are known and represent good estimates of the value society places on those resources. On the benefit side it is more difficult to determine and value the project's impact. Typical health project benefits are listed below.

Examples of potential benefits of health projects

Effects of reduced morbidity (sickness) on productivity.

- Fewer days lost from acute stages of illness.
  - From worker.
  - From members of family caring for the ill.
- Fewer days of productivity temporarily reduced through either pace of work or failure to work.
- Fewer days of lower productivity from permanent disability.

Effects of reduced mortality (death) on productivity.

- Fewer worker days lost through premature death.
- Less family time lost.

Examples of potential benefits of health projects continued

Consumption benefits.
- Increased output of subsistence household goods (such as house repairs, wood gathering, kitchen garden, pond cultivation, homemade articles).
- Increased leisure (the value of leisure time is output foregone).
- Higher quality of life.

Intrinsic value of life and reduced suffering.
- To the individual.
- To others.

Greater efficiency of the school system (ie more efficient learning).
- Resource saving — less wasted education expenditure.
- Higher future productivity due to better physical and mental development.

Reduced expenditures by household on:
- Medical care, drugs, traditional healers.
- Supplementary food (eg in cases of malaria and diarrhoea).

Other benefits.
- Externalities (example: herd effect of immunization).
- Fertility reduction (following established increase in child survival).
- New lands (examples: outer islands of Indonesia and malaria; Voltaic river basin and onchocerciasis).
- Direct government resource savings resulting from internal efficiency improvements

Sources: (de Ferranti 1985) and (World Bank 1998, p 93).
Note: Selection of benefit indicators needs to ensure no 'double counting' occurs.

Valuing reduced morbidity and mortality is typically achieved using the human capital or willingness to pay (contingent valuation) approaches.

The human capital approach regards all health improvements as an investment in human capital. Improved human capital yields incremental future income arising from an increase in the effective supply of labour. The value of human capital can be measured in terms of the future expected lifetime earnings of the individual concerned, adjusted to allow for such factors as working life expectancy and participation rates in the labour force. The value of life is then obtained by discounting these future earnings to their present value. The human capital approach provides minimum values of human life because it does not value the psychological (consumption) benefits that the patient and the patient's family derive from treatment.

The willingness to pay approach values benefits by the amount society is willing to pay for those benefits. This can be observed from consumer behaviour (e.g. usage rates at varying prices). Alternatively willingness to pay estimates can be determined from survey questions (contingent valuation).

To use the human capital approach it is necessary to gather data on the extra time (caused by better health) devoted to productive activities. This requires information on changes in morbidity and mortality by age group and sex, and

information on productive activities (e.g. labour gross margins of village gardening and other work). The human capital approach could be applied to the project's training component if an estimate of wage rises (that will result from that training) could be obtained.

The willingness to pay approach could be applied if consumers' use of alternative health care options could be observed. For example, how much time and resources were used previously in obtaining similar health services elsewhere. On Kadavu, transport costs to hospital can be up to $F50 or even $F150 per trip.

A sophisticated willingness to pay survey (contingent valuation) is inappropriate for this level of evaluation. However, in focus group work it may be possible to obtain anecdotal estimates of consumer's willingness to pay for the health services provided. This could be used, with due acknowledgement of the data limitations.

Ideally. a household survey would be undertaken which collected data on household characteristics, medical service use before and after the project and health outcomes before and after the project. It is unlikely that evaluation resources are sufficient for a full survey but some anecdotal and local expert knowledge would be available.

Switching values

One way around the valuation of life issue is provided in the evaluation of the World Bank's National Schistosomiasis Control project for Egypt. For this project the "switching value" (of a life saved) that would make the project fail to pass a 10 per cent rate-of-return test was calculated and the required value of life shown to be unreasonably low. This method will not always give clear answers. Sometimes the value of life so obtained will be within a reasonable range for such a number. At the least, though, this calculation could give the policymaker something to discuss.

Source: (Hammer 1997, p 56)

Discount rate

To aggregate financial or economic data in cost-effectiveness and cost-benefit analysis it is important to recognise that costs and benefits are valued by consumers according to when they occur. Typically a cost or benefit is more serious (valuable) if it occurs now rather than later. To account for this, benefits and costs that accrue over time need to be discounted.

Discount rates can be derived from past practice or standards. For example in health projects the Asian Development Bank uses a 10–12 per cent discount rate (Asian Development Bank 1997), the World Bank uses 3 per cent (World Bank 1993), and recipient governments may have their own standard rates.

A more relevant (and theoretically correct method) is to use local capital markets. Here interest rates are a measure of the exchange rate between now

(when the money is borrowed) and the future (when it is paid back). Interest rates represent the discount (time preference) savers need to be compensated for (by interest payments) if they are to be encouraged to give up current consumption for future consumption. The data required are the inflation rate and a long-term, low risk financial instrument (typically a government bond).

Because the question we are asking is 'whether the project was worthwhile? Did we make the right choice', the discount rate should be relevant to when the project began and be applied from the beginning of the project. For this project an inflation rate of 1 per cent and a long term bond rate of 6 per cent are used, giving a discount rate of 5 per cent.

Valuing costs and benefits

Kadavu Rural Health Project cost-benefit analysis data requirements

Project impact	Valuation method	Data requirement	Data source
Costs			
Project costs AusAID $A7.3m PWD $0.5m Expatriate Kadavuans	Market prices	Expenditure by category	AusAID PWD
GOF contribution • land • extra medical staff • extra maintenance	Market prices	Expenditure by category In-kind by category In-kind prices	MOH budgets
Villager's contribution (includes migrants)	Market prices	Expenditure by category In-kind by category In-kind prices	Project records? Local interviews?
Benefits			
Referrals avoided • saved resources	Market prices	Change in referrals by category Unit price by category	CWM Hospital records?
Reduced staff turnover	Market prices	Reduced expenditures on recruitment	MOH
Improved housing	Market prices	Rents on Kadavu or similar location	Kadavu interviews
Training		Higher future incomes	
Community projects 1 toilets 2 water supply 3 dispensaries 4 animal control	1 Willingness to pay 2 Market prices 3 Market prices	1 expressed price 2 quantity of water provided and water price 3 rents	1 village focus groups 2 project records, interviews
Hospital and health centres	Market prices	Rents or profits in private health facilities	

Kadavu Rural Health Project cost-benefit analysis data requirements continued

*Productive labour freed by reduced morbidity and mortality	Human capital approach	• Morbidity and mortality impacts • Labour productivity measures (agricultural gross margins)	Hospital records? MOH MoA Focus group data?
*Reduced morbidity and mortality	Willingness to pay approach	• Price paid for alternative medical services • Expressed values (survey)	Focus group data?

Note: The reduction in morbidity and mortality will provide production benefits (more output) and consumption benefits (direct enjoyment of longer and healthier life). If these are not measured carefully some double counting can occur.

Costs

Justification: Only the AusAID costs are included because most of the costs borne by the Ministry of Health, Public Works Department and the villagers would have happened without the project (ie they are normal operating costs rather than project costs). The AusAID costs are in addition to normal costs and value the resources used up by the project. These resources used by the project are no longer available for other uses and are therefore an economic cost to society.

Measurement: The prices paid for most of these resources are determined in competitive markets and therefore represent economic values. Therefore the expenditures in the project budget can be used. No adjustment is made for taxes or subsidies as these are not considered to significantly bias prices away from competitive market levels.

Value: The $A7,314,673 is spread evenly over the three years of implementation and adjusted to Fiji dollars using an exchange rate of $F1.00–$A0.80. At 5 per cent discount rate this gives a present value in 1994 of $F8,299,862.

Summary of project costs ($A) by component:

Community development	350,000
Human resource development	660,000
Infrastructure	5,853,534
Project management	457,139
Total	7,314,763
Personnel	1,400,000
Procurement	5,063,848
Training	467,000
Other	383,825
Total	7,314,673

Source: (Kadavu Subdivision Rural Health Project 1997, Annex B)

Benefits

Hospital, health centres and nursing stations.

Justification: the hospital, health centres and nursing stations provide an accommodation service to Kadavu's health system. This increases the resources available to Fiji society.

Measurement: the accommodation provided can be valued by the rent they would command in the open market. These facilities are not typically rented but similar retail and small high tech industrial accommodation could be used as a proxy. It is assumed that the nursing stations would rent at $F5,000 per annum, the health centres at $F10,000 per annum and the hospital at $F100,000. The upgraded nursing stations will provide a better standard of accommodation and are assumed to produce an extra $F3,000 rental per annum. The life span of these buildings is assumed to be 20 years. The capital value of the buildings is calculated as one hospital at $F100,000 pa plus one new health centre at $F5,000 pa plus one new nurses station at $F2,500 p.a. plus three upgraded nursing stations at $F1,000 over 20 years discounted at 5 per cent (annuity factor = 12.4622).

Value: $F1,189,569.

Housing

Justification: the new housing and improved housing provides more and better accommodation services to the Kadavu health personnel. This increases the resources available to Fiji society.

Measurement: The nine new houses and the six upgraded houses provide accommodation. If the housing was rented out it is assumed that the rent would be $2,500 per annum. It is assumed that the upgrading of houses has increased their rental value by $1,000 per annum. Therefore the new houses are worth the capitalised value of future rent and the upgrading of the existing houses is worth the capitalised value of the extra rent. The houses are assumed to have a life span of 20 years. Even though these rents are not collected they do represent a good estimate of the value of the accommodation service produced by the project. The capital value of the housing is calculated as nine houses times $F2,500 rent plus six houses times $F1,000 rent over 20 years discounted at 5 per cent (annuity factor — 12.4622).

Value: $F306,812 .

VHW and VEW training

Justification: the training increases the VHW and VEW human capital and future productivity. This increases the resources available to Fiji's society.

Measurement: The increased future products (gross marginal of labour) are assumed to be worth $F25 per annum per trainee. There were 100 trainees. Average working life remaining is assumed to be 20 years. The capital value of increased future earnings (productivity) is calculated as 100 trainees times $F25 per annum for 20 years discounted at 5 per cent (annuity factor = 12.4622).

Value: $F26,913

Nurse training (certificate)

Justification: the training increases the nurses' human capital and future productivity. This increases the resources available to Fiji's society.

Measurement: The increased future products (gross marginal of labour) are assumed to be worth $F500 per annum per nurse. There were four trainees. Average working life remaining is assumed to be 20 years. The capital value of increased future earnings (productivity) is calculated as four trainees times $F500 per annum for 20 years discounted at 5 per cent (annuity factor = 12.4622).

Value: $F21,531.

Water supply

Justification: a larger and better quality water supply has been provided. This increases the resources available to Fiji's society.

Measurement: the increased water supply can be measured in kilolitres and valued at the water price charged elsewhere in Fiji. It is assumed that each village household uses 50 kilolitres per annum, that there are on average 10 households in the 39 villages supplied with water, that the infrastructure will last 20 years and that the water price is $0.50 per kilolitre (based on the price in Suva). The value of the water consumed is calculated as 50 kilolitres per household times households per village times 39 villages times $0.50 per kilolitre for 20 years discounted at 5 per cent (annuity factor = 12.4622).

Value: $F104,962 .

Sanitation (toilets)

Justification: the project's toilets provide an improved sanitation service. This increases the resources available to Fiji's society.

Measurement: the improved sanitation service can be valued by comparing what other Fiji Islanders pay for sanitation. It is assumed that the typical household

payment for sanitation is $F50 per annum, that the 576 toilets constructed represent the equivalent of one household each, that the toilets will last for 10 years. The value of sanitation is calculated as 576 toilets times $F50 per annum for 10 years discounted by 5 per cent (annuity factor = 7.7217).

Value: $F192,105.

Dispensaries

Justification: The dispensaries provide an accommodation service for village health workers. This increases the resources available to Fiji's society.

Measurement: the accommodation provided can be valued by the rent the dispensaries would command in the open market. These dispensaries are not typically rented but similar retail accommodation could be used as a proxy. It is assumed the 36 village dispensaries would rent for $F1,000 per annum and that they would last for 10 years. The value of the dispensaries is calculated as 36 dispensaries times $F1,000 over 10 years discounted by 5 per cent (annuity factor = 7.7217).

Value: $F240,132.

Fencing (animal control)

Justification: The fencing excludes animals and their pollution from the village. This is a sanitation service. This increases the resources available to Fiji's society.

Measurement: Sanitation is provided to other Fiji Islanders by commercial and public garbage collection. It is assumed that in other areas of Fiji households pay $F20 per year for garbage collection. The value of fencing is calculated as 8 villages times 10 households per village times $F20 per year for ten years discounted by 5 per cent (annuity factor = 7.7217).

Value: $F10,673.

Transport

Justification: the vehicle and boats provide a transport service. This increases the benefits available to Fiji's society.

Measurement: The three boats and one 4WD vehicle transport patients and medical staff. This can be valued by the rental cost of alternative transport.

Value: Not calculated.

Increased labour output from healthier workers

Justification: Sick and dead workers do not produce. Therefore improved health increases production. This increases the resources available to Fiji's society.

Measurement: the extra time used in productive work (paid and unpaid) can be valued using the average productivity of workers on Kadavu (valued by the average wage per worker (or per capita GDP on Kadavu). It is assumed there are 4,000 workers on Kadavu and on average the project (by improving their health) will provide one extra days work per annum per ten workers, on average the project will save five extra workers' life per year, the average working life remaining per worker is 20 years, and the average wage per worker is $F2.80 per hour (paid in 1999 to unskilled Ministry of Health workers on Kadavu). Assuming a 30 hour week and 48 week working year, this gives an annual wage of $4,000. The annual wage is the opportunity cost and productive value of one year's life. The value of productive labour freed of death and illness is calculated as one life saved per year times $F4,000 per year over 20 years discounted by 5 per cent (annuity factor = 12.4622) plus 400 workers times one day of extra work per year times $F17 per day.

Value: $F2,755,536.

Consumptive health benefits

Justification: Improved health is a consumption good, valued for its direct use to consumers, who feel better if they are well. This increases the benefits available to Fiji's society.

Measurement: It is very difficult to value the feelings of health consumers. However, health consumers can show the value they put on health by their purchases of health service and by their expressed value of health in surveys. It is assumed (by the analyst and based on Fiji living standards) that Kadavu health consumers value the feeling of an extra healthy day at F$10 (this is based on the behaviour of Kadavuans who typically pay from $50 to $150 in transport costs to access hospital services) and a healthy life at $F10,000 (this is assumed to be 2.4 times larger than the productive value of a human life. The consumption value of the project's health benefits can be calculated as five lives saved per year times $F10,000 over 20 years plus 400 few sick days per annum times $F10 over 20 years discounted by 5 per cent (annuity factor = 12.4622).

Value: $F6,751,043.

Costs and benefits of the Kadavu Rural Health Project, 1994 Fijian dollars, '000

Total		1994	1995	1996	1997	1998	-	2006	2007	-	2016
PV Costs											
$8,300	AusAID	3,048	3,048	3,048	0	0	-	0	0	-	0
$8,300	Total cost	3,048	3,048	3,048	0	0	-	0	0	-	0
Benefits											
$27	VHW trainees	0	0	0	3	3	-	3	3	-	3
$221	Nurses training	0	0	0	2	2	-	2	2	-	2
$307	Housing	0	0	0	29	29	-	29	29	-	29
$1,190	Medical buildings	0	0	0	111	111	-	111	111	-	111
$105	Water	0	0	0	10	10	-	10	10	-	10
$192	Toilets	0	0	0	29	29	-	29	0	-	0
$240	Dispensaries	0	0	0	36	36	-	36	0	-	0
$11	Fencing	0	0	0	2	2	-	2	0	-	0
$2,756	Productive life	0	0	0	256	256	-	256	256	-	256
$6,751	Consumptive life	0	0	0	627	627	-	627	627	-	627
$11,599	total benefit	0	0	0	1,103	1,103	-	1,103	1,103	-	1,103
$3,299	Total net benefit	-3,048	-3,048	-3,048	1,103	1,103	-	1,103	1,103	-	1,103
NPV	$F3,299,000										
IRR	9%										

Note: PV is present value (1994 dollars), NPV is net present value (benefits-costs), IRR is internal rate of return

The first three years of initial investment provides a 20 year stream of health benefits and accommodation services. Comparing these costs and benefits using a 5 per cent discount rate gives a net benefit of over three million Fijian dollars and a 9 per cent internal rate of return. This shows that the project has made a significant addition to the welfare of Fiji and supports the decision to undertake the project.

Sensitivity analysis

Sensitivity analysis examines how the cost benefit analysis results change if some of the parameters are changed. The analysis is most informative if the parameters selected are those most likely to change (risk) and are also likely to have a large impact on the CBA results.

In the Kadavu CBA the number of lives saved by the project is difficult to determine (risky) and is a large part of the potential benefits. Therefore it is chosen for sensitivity analysis. The number of lives saved impacts on both the productive and consumptive life benefits.

The NPV and IRR calculated above use a conservative assumption of only five lives saved per annum by the project. In the cost effectiveness analysis, in Appendix 9, it was estimated that the project may have saved as many as 40 lives per annum. Taking 20 lives saved and re-estimating the NPV and IRR provides information on the potential upside of the project.

Sensitivity analysis

	5 lives saved	20 lives saved
NPV	$F3,299,000	$31,462,266
IRR	9%	30%

It is important to examine the potential negative impacts of the poor data available for this cost benefit analysis. By incorporating more pessimistic assumptions into the analysis it is possible to check the reliability of our conclusion that the project has improved the welfare of Fiji's society.

A pessimistic assumption of reducing project life from 20 to 15 years (shown below) will substantially reduce the projects total benefits but the project remains a positive addition to the welfare of Fiji's society.

Project life:	20 years	15 years
NPV	$F3,299,000	$F1,435,080
IRR	9%	7%

A much stronger test of the pessimistic case can be made by changing several assumptions at once. In the table below the pessimistic case reduces project life to 15 years, reduces the annual consumptive value of a life from $F10,000 to $F8,000, reduces the value of toilets from $F50 to $F5, reduces impact of training from 20 to 10 years, and reduces the impact of fencing from 10 to 2 years. These assumptions take a very pessimistic view of the project. However the project still has a strong positive impact on the welfare of Fijian society. An internal rate of return of 5 per cent is a respectable return.

	Base case	Pessimistic case
NPV	$F3,299,000	$F126,347
IRR	9%	5%

The sensitivity analysis suggests that we can be very confident that the project is beneficial to society in the economic sense, that its benefits outweigh its costs.

Distributional and stakeholder analysis

Cost-effectiveness and cost-benefit analysis treat all stakeholders equally. If the project's objective is to assist specific groups (e.g. women, the poor, etc.) it is necessary to supplement the evaluation with a distributional analysis such as a distributional incidence table or a planning balance sheet. This analysis

identifies the relevant stakeholders and the project's impact on them. It allows a consideration of distributional impacts.

Kadavu Rural Health Project distributional incidence table

Stakeholder	Cost	Benefit
Villagers	Contributed inputs	Improved mortality and morbidity
GOA	Personnel, equipment, training, etc.	Training materials
GOF	Contributed inputs	
GOF health workers	Labour time	Training Wages Housing
Village health workers	Labour time	Training

'The wide variety of possible health services thus has an equally wide variety of possible effects for different income groups. Before interventions in the health sector are designed with poverty alleviation as an objective, their effects on the ultimate beneficiaries need to be carefully calculated. Many kinds of health subsidies will have a perverse result.' (Hammer 1997, p 52). For example, typically infectious diseases disproportionately affect the poor. Although the poor suffer higher mortality from all causes, the rate at which they die relative to the non-poor is very much higher for infectious than for noninfectious diseases (Hammer 1997, p 50). The hospital and community health components of the Kadavu health project will have differential impacts on poor and non-poor. This can be examined using the distributional incidence table.

The distributional analysis can be expanded into a more sophisticated stakeholder analysis by including the objectives of each stakeholder group. This facilitates consideration of the impact of incentives such as the impact of improved housing on the turnover rate of Kadavu based GOF health workers.

Conclusion

The project was a good use of society's resources. It produced an NPV of over three million Fiji dollars and an internal rate of return of 9 per cent. Compared with typical aid projects, this is a very good result. The analysis here supports the transfer of this project approach to other areas in Fiji and other Pacific islands.

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Appendix 11: Financial sustainability

This terms of reference of the ex-post evaluation requested an assessment of the financial sustainability[1] of the Kadavu Rural Health Project in the context of the requirement for recurrent financing by the Ministry of Finance. Based on expenditure analysis, it is concluded that the recurrent costs do not appear to have been a major problem for the sub-division. However, greater maintenance spending is required to protect the benefits of the project investment.

This conclusion is supported by an earlier study. In a recent review of recurrent cost financing, the Kadavu Rural Health Project was identified by surveyed contractors as an example of a project receiving adequate recurrent cost financing. Institutionalising the project was seen as crucial to this success (AusAID, 1999, p 29). Institutionalising financing includes the project's success in encouraging the local governments (Provincial, *Tikina* and village) to use their own resources and apply for central government financing for complementary health investments.

Unfortunately financial data from the Ministry of Health is limited but the analysis over the four years to 1999 shows that the increase in recurrent costs borne by the Ministry increased on average by 9 per cent per year. This is similar to the health subdivision of Taveuni and much less than the subdivision of Lakeba. These subdivisions are good comparisons because they have similar sized populations and similar problems of isolation and transportation.

The Kadavu Rural Health Project started in 1994 and ended in 1997. The percentage annual increase data in the table below suggests that the project has not resulted in unusual increases in recurrent spending.

Subdivisional expenditure, 1996-1999, average annual increase, per cent

	Taveuni	Kadavu	Lakeba
Established staff	9.2	7.8	35.4
Unestablished staff	2.5	29.1	52.7
Travel and communications	2.3	1.3	31.8
Maintenance and operations	3.9	78.2	55.4
Purchase of goods and services	17.4	3.1	20.4
VAT	8.0	9.2	36.3
Total	8.0	9.2	36.3

Source: Ministry of Health.
Note: Established staff are those in permanent positions (principally doctors, nurses and dental staff). Established staff expenditure includes salaries, superannuation, allowances, overtime, etc. Unestablished staff are those in casual employment (principally unskilled labour). Unestablished staff expenditure includes salaries, superannuation, allowances, overtime, etc. Travel and Communications includes travel and passage, subsistence and hotel expenses, telecommunications, freight and cartage, transfer expenses, and transport of patients. Maintenance and Operations includes fuel and oil, spare parts and maintenance. Purchase of Goods and Services includes rations, oxygen supplies, general stores and incidentals, and power, light, water, and refrigeration.

1 This includes salaries, ongoing operational costs of staff and equipment, and ongoing physical resource maintenance.

In the table below, total actual expenditure in Kadavu jumped sharply in 1997 by 21 per cent. In particular, there were large percentage increases in unestablished staff (92 per cent), travel and communications (50 per cent mainly telecommunications and transport of patients), and maintenance and operations (260 per cent mainly fuel). These increases could be due to the project. They have mostly been maintained through to 1999. Importantly there is no evidence of a reduction in recurrent cost financing on completion of the project. This suggests a willingness by the Ministry of Health to continue the recurrent cost financing required by the project.

One common suggestion for funding recurrent cost financing is through revenue raising. In the table below revenue collected is only around 0.5 per cent of total expenditure. The introduction of higher fees on Kadavu could be expected to diminish access for the many low income families and drive others to seek medical attention in Suva. It is unlikely that on Kadavu self-funding of cash costs is a practical option. The alternative of accessing in-kind resources is already highly developed, with Village Health Workers being unpaid. Part of some health capital, such as water supply schemes and some village dispensaries, are also locally funded. There may be some scope for encouraging villages to contribute more in kind and cash towards the maintenance cost of dispensaries and nursing stations.

Kadavu expenditure, $F

	1996	1997	1998	1999
Established staff	356,547	397,919	433,168	468,301
Unestablished staff	29,578	56,897	62,577	64,014
Travel and communications	17,419	26,083	25,826	18,353
Maintenance and operations	3,224	11,597	13,885	13,315
Purchase of goods and services	27,690	31,809	30,874	31,087
VAT	43,446	52,430	56,633	59,507
Total	477,904	576,735	622,963	654,577
Kadavu Revenue, $F	2,358	3,023	3,342	

Source: Ministry of Health.

In the table below, the budget allocation of expenditure is set by the Ministry of Finance (after receiving bids for increases from the Ministry of Health). The Ministry of Finance has been willing to gradually respond to Ministry of Health requests for increased recurrent cost financing during and after the project. However, the increases in budget allocation have been too slow to avoid large increases in overspend (actual less budgeted allocation). This overspending was also found to be typical of subdivisions without large aid projects, such as Lakeba and Taveuni. It may have been possible to address this in the original project design by negotiating budgetary approvals with the Ministry of Finance as well as the Ministry of Health.

The budget constraints imposed by the Ministry of Finance allocations are quite flexible. This has enabled the project to proceed even though expenditure exceeded budgeted allocation. If this financial flexibility was not available, the project would have experienced significant financial constraints.

Budgeted vs actual expenditure, Kadavu

	1995	1996	1997	1998	1999	2000
Allocation	62,134	67,278	86,000	82,100	99,400	104,029
Actual	63,147	90,534	103,977	118,825	117,051	
Overspend	-1,013	-23,256	-17,977	-36,725	-17,651	

Source: Ministry of Health.
Note: This does not include established staff.

The conclusion above, that the overspend is manageable, is contradicted by the conclusions of the 1997 Post-Project Evaluation Report. The overspend identified in the 1997 Post-Project Evaluation Report was large and growing. Budgeted expenditure in Kadavu grew by 15 per cent between 1994 and 1996 while actual spending grew by 31 per cent. Clearly this is not financially sustainable. See the table below. Most overspend was in wages and travel-related costs, crucial to the sustainability of the community elements of the project. (AusAID, 1997, p 19) It is not clear from the 1997 report why the overspend is so large and growing, nor how long the Ministry of Health would be willing to fund the overspend.

The financial estimates obtained by the 1997 evaluation team (see table below) and the current team (see table above) are different. This is a good example of past difficulties of financial recording in the MOH and therefore financial planning for the Kadavu project. However, despite differences in the size of actual and budgeted expenditures, the MOH has clearly been able to finance significant recurrent cost overspending. While this is not the same as fully funding required recurrent costs (particularly building maintenance) it is a substantial achievement and a major contribution to financial sustainability.

Ministry of Health budget overspend ($F) in Kadavu

	1994	1995	1996
Health Centres and Nursing Stations			
Actual expenditure	20,130	21,467	23,355
Estimated expenditure	11,072	11,599	14,498
Overspend	9,058	9,868	8,857

Ministry of Health budget overspend ($F) in Kadavu continued

	1994	1995	1996
Vunisea Health Centre			
Actual expenditure	1,899	2,550	1,519
Estimated expenditure	2,627	2,555	1,875
Overspend	-728	-5	-356
Vunisea Hospital			
Actual expenditure	57,150	63,508	90,535
Estimated expenditure	45,968	46,700	52,105
Overspend	11,182	16,808	38,430
Total			
Actual expenditure	79,179	87,525	115,409
Estimated expenditure	59,667	60,854	68,478
Overspend	19,512	26,671	46,931
Percentage overspend (of estimated exp.)	33	44	69

Based on (Kadavu Sub-Division Rural Health Project 1997, p 19)
Note: expenditure on established staff appears to be excluded.
Source: MOH budgets.

The table below shows that maintenance is a very small proportion of total expenditure by the Ministry of Health. In part this is due to the Department of Public Works formerly having the budget for maintenance. While the funding for maintenance has now been transferred to the MOH, the mechanism for carrying out the maintenance is still being developed. However, it appears from discussions with MOH personnel and the team's field examination that little maintenance has been carried out since the project's completion.

This lack of recipient government maintenance funding appears to be very common and has been identified in a previous AusAID report. In the South Pacific and PNG there is a preference for avoiding recurrent cost financing and allowing assets to run down in the well founded expectation that donors are more willing to fund replacement of a asset than its maintenance (AusAID, 1999, p 5).

It would be sensible for future projects to provide for some transitional funding for maintenance. This could be in the form of construction contracts with built-in maintenance components (or warranties) or budgetary assistance to the recipient government (either directly or through trust fund arrangements).

Spare parts and maintenance in Kadavu

	1996	1997	1998	1999
$F	845	2,768	3,426	2,782
Per cent of total expenditure	0.2	0.5	0.5	0.4

Source: Ministry of Health.

Recurrent costs were considered in the planning for the project. As the table below shows, the expected increment in costs was $F64,576 which resulted in an expected post-project total expenditure of $F548,950. This total was reached in 1997. The total increase in expenditure was reasonably accurate, however, the components were quite different. The components bear little relationship with the components supplied by the MOH for the years 1996–99. This suggests that more attention needs to be placed on the forecasting of recurrent expenditures in the project planning process.

Estimates of existing recurrent costs for Kadavu Subdivision (1993?)

Item	Hospital	Health centres and nursing stations	Health inspector	Total
Salaries	130,908	108,334	8,952	248,194
Medical supplies	30,330	26,051		56,381
General expenditure	33,463	6,295	8,835	48,593
Nursing subsistence expense	738	3,961	648	5,347
Nursing transfer expenses	864	154	345	1,363
Transfer of Patients	1,644	1,536	825	4,005
Building maintenance	73,499	46,992		120,491
Total	271,446	193,323	19,605	484,374
Project increment				
Salaries	0	20,644		20,644
Medical supplies	3,033	3,126		6,159
General expenditure	13,133	2,150	-4,236	11,047
Nursing subsistence expense	-738	792		54
Nursing transfer expenses	-864	1,226		362
Transfer of Patients	-822	-768		-1,590
Building maintenance	4,400	8,200		12,600
3 boats* 1 4WD vehicle	3,300			3,300
Maintenance officer		12,000		12,000
Total increment	21,442	47,370	-4,236	64,576
Total after project	292,888	240,693	15,369	548,950

Source: letter 1993 in AusAID file and (AusAID, 1996, p 22) expressed as increments and adjusted for some arithmetic errors in the original.

In conclusion, the Kadavu Rural Health Project did not result in a large increase in recurrent funding (compared with other subdivisions) and the Ministry of Health has continued to meet the recurrent financing costs after the project was completed in 1997. This is primarily due to a flexible approach to MOF budgeted expenditure allocations. The project was also very successful in encouraging health expenditure by the local governments on Kadavu. Therefore the project is considered to be quite successful in dealing with recurrent costs. However, greater maintenance spending is required to more fully protect the benefits of the project investment.

Suggested lessons learned

- Self-funding of a large proportion of cash costs is not a practical option on Kadavu[3].
- Budgetary approvals should be negotiated with the Ministry of Finance as well as the Ministry of Health (and incorporated in MOF allocations).
- Greater and more formal consideration of recurrent cost financing in the project design phase. Budgets should include counterpart recurrent cost financing through the project implementation and for ten years after. The impact of alternative project designs on recurrent cost financing should be explicitly considered.
- Longer term projects have a greater chance of institutionalising recurrent cost financing in the recipient Ministry and building local ownership and community involvement in funding. Continued project funding into the operations phase allows ongoing maintenance requirements to be addressed.
- Construction contracts should include extended warranty for maintenance.
- AusAID trust fund for maintenance should be considered. Fungibility can be addressed by making payment dependent on the Ministry's previous year total and maintenance expenditure reaching agreed amounts.

Bibliography

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3 However, there may be some scope for encouraging villages to contribute more in kind and cash towards the maintenance cost of dispensaries and nursing stations.

Appendix 12: Suggested criteria for prioritisation of future sites

Selection of Kadavu as the site for KRHP originated with the need to replace (the old) Vunisea Hospital, which was said to have been the oldest hospital in the Fiji Islands requiring replacement or refurbishment. The project grew in size to include a significant non-hospital components. The following checklist is offered as one possible approach with which MOH can systematically consider prioritisation of potential sites for a similar health service development project.

1. Health status

2. Access

- Remoteness
- Dispersion
- Transport infrastructure
- Population size, growth and expected growth
- Length of time with limited access to health services
- Communities with least expenditure currently

3. Ability to benefit

- Strength of leadership: (1)Traditional, (2)Government, (3) Church
- Community cohesion
- Community stability
- Community capacity to benefit/cost-effectiveness, for example:
    1. availability of un-utilised or under-utilised resources
    2. current activities which would enhance additional resources e.g. active NGO
- Health status

4. Political acceptability

- To politicians
- To community groups
- To ethnic groups

Quality Assurance Series No. 24

Developing Integrated Rural Health Care Systems: An Evaluation of the Kadavu Rural Health Project in Fiji

The Kadavu Rural Health Project on the island of Kadavu in Fiji began in 1994 and was completed in 1997. Its goal was to develop an integrated approach to the rural health care delivery system for the Kadavu medical sub-division of Fiji. The project included community participation activities, training of Ministry of Health staff and community personnel, and provision of health care infrastructure, equipment and services.

An evaluation in 2000 concluded that the project had made a major contribution to improving the rural health care delivery system in Kadavu. It refocused health service activities to give a greater emphasis to health promotion through increased community participation. A small grants scheme developed through the project assisted communities to attract additional funds from a national Rural Development Scheme. These funds were used to upgrade sanitation, drainage and water supply, and to build dispensaries, fencing for animal control and model kitchens.

The project's training program was particularly successful. It increased community participation in the health system, and raised awareness of and support for environmental health initiatives among community leaders.

The new hospital, new staff housing, refurbishment of nursing clinics and health centres improved health facilities across the island. Baseline studies would have informed infrastructure design and usage patterns. The infrastructure component should have had closer links with the community development component, and greater focus should have been given to maintenance costs for the health infrastructure. Non-health agencies, such as Public Works Department, are critical for ongoing support, and closer involvement should have been fostered throughout the project.

The primary care health system on Kadavu is strong. However, the support for staff through training programs and infrastructure maintenance needs continuing attention to improve sustainability.