

USAID PROJECT: 879-0004  
GRANT NO: 879-0004-1-SS-5012

*The*  
**RURAL BANK**  
THE RURAL BANKING AND FINANCE CORPORATION

'SN 52791

PD-AAW-607

REPORT TO THE MINISTRY OF FOREIGN AFFAIRS

USP COMPUTER DEVELOPMENT - STAGES 1 AND 2

AID CONSULTANCY 4 - 14 JANUARY 1987

The consultancy was carried out under the terms of reference described in Annex A to Mr Claassens' letter dated 19 December 1986. Broadly these call for an assessment of Phase I of the tripartite project and recommendations for a possible Phase II.

1. PROCEDURE

Full discussions took place with the Vice Chancellor (Dr Caston), Chairman of the Computer Services Committee (Dr Chandra), Director of the Computer Services Centre (Mr Mountier) and the New Zealand advisers (Messrs Gregg and Bahlmann). I attended two meetings of the Computer Services Committee, interviewed other members of the Centre staff and had numerous discussions with other university personnel. I endeavoured to sample opinion in all areas of the University but, of course, this was not possible in the time available. I did talk with key people in all three schools on the main campus, the Librarian and the acting head of Extension Services.

Key personnel who were absent on leave included the Director of Extension Services (Mrs Crocombe), the Professor of Mathematics (Prof Phythian), the Acting Registrar (Mr Rama), the Acting Bursar (Mr Emery) and the head of the Institute of Pacific Studies (Prof Crocombe). Two major administrative posts, Bursar and Registrar, are unfilled at present. Despite these absences I believe that I have gained a clear enough picture to address my terms of reference with confidence, with the reservation that it is too early to assess fully the development of computer services in the regions and none was visited though I did call informally at the Cook Island Centre in November 1986.

Whilst in Suva I reported orally to Mr David Taylor at the High Commission and with him had a good discussion with Messrs Paupe and Khun of US AID.

## 2.1 PHASE I - MAJOR OBSERVATIONS

2.1.1 First let it be stated very clearly that the two donor agencies can derive great satisfaction from what has been a very major contribution to the effectiveness of the university as a modern tertiary teaching institution serving the South Pacific. The speed with which the facilities have been taken up and utilised is impressive, though not unexpected, and donors can be assured that the response of the University, which is the third party in the project, has been professionally mature and enthusiastic, within the limitations of the resources, particularly numbers of staff, which it possesses.

2.1.2 I have been particularly impressed by the manner in which the Computer Services Committee under a strong chairman and guided by an experienced Centre director takes a university-wide view of all matters pertaining to computing in the organisation. This augurs well for the equitable distribution of scarce resources, fair assessment of needs and the formulation of wise policies.

2.1.3 As is to be expected there remain many doubts about the validity of the project and the relevance of the technology in the minds particularly of many in the university who still have no contact with computers. The internal public relations about the project have not worked particularly well and there is a lot of misinformation in circulation. There needs to be an informed university-wide debate about the scope and extent of USP's ultimate involvement with computing. The Computer Services Committee and Centre both have an important role to play in informing this debate, as do university staff who use the systems already.

## 2.2 PHASE I - FACILITIES PROVIDED

### 2.2.1 IBM PC network for teaching

This network of 15 workstations processed the computing needs of 600 course enrolments during the first year of its operation. During the second semester when the facility was available to students from 8 am to 10 pm on four days each week plus 8 am to 5 pm on two others there was on average at any time a student working at every keyboard with a further five queuing up.

### 2.2.2 Micro VAX II

This facility was used to process internal student enrolments during 1986. The system was written by Mr Brown, a short-term NZ AID advisor.

Further work is being done by Gregg and USP staff to enable the enrolment of extension students as well as internal students on the one integrated system in time for the first 1987 semester.

The micro VAX was also used by university staff and students for research and teaching. There is pressure on the small number of terminals available at times and the disk storage is becoming saturated.

### 2.2.3 IBM PC networks for production of teaching materials and publications

The network of five workstations in the Extension Services Centre is working to full capacity. It has enabled the production of one third more pages of documentation for students to use with a substantial improvement in clarity and quality as well.

The units in the Institute for Pacific Studies are also heavily used in the production of publications.

Both these facilities are aided by the University's adherence to a single word processing standard. The system which the Computer Services Committee chose, 'Word Perfect', has proved satisfactory for use by professional editorial staff.

### 2.2.4 IBM PCs as multi function units on the main campus and at Alafua

These devices, which were installed as single units in teaching departments have had a dramatic impact in terms of computer awareness amongst university support staff and academic staff alike. Training in computer use and 'Word Perfect' was provided for selected staff by Bahlman. The devices have been heavily used, the confidence of secretarial staff in the use of the technology is growing while academics are observing the success of their pioneering colleagues and realising the benefits which they could derive themselves in preparation of teaching materials and publications.

Several heads of department used terms like 'a complete revolution in our way of working' when describing the impact of these particular facilities. They also said things like: 'what we need is more of them'. 'Word Perfect' seems to be satisfactory for use by amateur keyboard operators like students and teachers.

The PC training so far has really only covered word processing. Many potential users are therefore unaware of the options which could be open to them. Others who are so aware, regret that broader training (and machine access) is not yet possible.

### 2.2.5 IBM PCs in Extension Centres

Single units were installed in five Centres. Similar units funded independently have been installed at two others. Pressure on the single unit at the Fiji Centre has been such that a further five have been installed which the Centre funded itself.

Every installation of hardware and software was accompanied by training in computer use and 'Word Perfect' given on-site by Bahlman. He reports at some Centres a response very similar to that experienced on the main campus. At others there were and may remain some problems in giving the local staff confidence and a realisation of the relevance of the equipment to their own situation.

A program of training in Extension Centres is planned for the current year. It is intended to extend the knowledge of staff in the Centres to the stage where they can support the first teaching course using Extension Centre computers which will be introduced in the second semester.

### 2.3 CONCLUSIONS ON THE US AID CONTRIBUTION DURING PHASE I

2.3.1 All the equipment installed, both hardware and software, has proved to have the capabilities expected of it. Support provided by DEC and the local agents for IBM has been adequate though provision of items from overseas has at times been quite unacceptably slow.

2.3.2 It was unfortunate that a variation in the exchange rate meant that some of the funds provided for software and the purchase of six Apple Macintosh computers did not eventuate. A small number of the latter machines are now used on the main campus, having been funded separately. Their characteristics are appreciated by those who have been able to use them.

2.3.3 In general the hardware has functioned well. The VAX equipment is housed in an excellent air-conditioned environment. It is not possible for functional reasons for every IBM PC to be air-conditioned. The use of disks which have been subject to conditions of high humidity has caused problems with dirty disk read/write heads. A combination of more frequent preventative maintenance and use of air-conditioned storage or "hot boxes" for the disks themselves will be required to combat this problem. ✓

2.3.4 The main observation is that all the equipment is being well used and for the sort of purposes for which it was provided. Much of it cannot meet the volume of demand which is being placed on it. There has been a tremendous stimulation of interest in and understanding of the potential benefits to be obtained from the technology as well as of the requirements placed on those who seek to realise them.

### 2.4 CONCLUSIONS AND PROPOSALS ON THE NZ AID CONTRIBUTION DURING PHASE I

2.4.1 The New Zealand Aid contribution has been vital to the success of Phase I. The two short-term advisers, Mrs Patel and Mr Brown, both made essential contributions at times when they were needed and which could have been obtained in no other way. The two

long-term advisers, Gregg and Bahlman, each appear to be very well suited to the tasks required of them. They are both working very hard and they and their families appear to be content and settled in Fiji. There has been no criticism of any kind of either man and many favourable comments concerning their abilities, knowledge and willingness to render friendly assistance with whatever problem comes along. Moutier is very happy with the quality of the staff he has to work with. (The University is also very happy with Moutier.)

Dr MacKinnon, the CFTC funded interim Director from Lincoln College, also appears to have been very much the right man at the right time not least because of his technical competence with VAX software. He set up a sound operation on which his successor could build.)

- 2.4.2 There is only one minor blemish to what is clearly a success story for NZ AID. The contribution of an on-going supply of library materials to support the efforts of teachers of computing and providers of computing services does not appear to have commenced. I am sure that Mr Moutier and Professor Phythian will be only too happy to provide details of what is required. ✓
- 2.4.3 As regards the second year of their engagements both Gregg and Bahlman foresee very full programs. Gregg will continue to work with a programmer from USP staff in the further development and integration of the university's student and staff records and financial systems on to the micro VAX. He feels that the process will involve a further year beyond the end of his present contract. He is of course able to pass on his knowledge and skills to his local colleague.
- 2.4.4 In his second year Bahlman will be seeking to expand the training of users of IBM PCs in Fiji and elsewhere to provide competence and understanding of spreadsheets, databases and the role of programming languages. He is also involved in the design of course material for the first two extension courses in computing which will be provided through Centres in the second semester of this year. This will involve a substantial increase in his travel costs as compared with the first year of his engagement.
- 2.4.5 Bahlman has also developed a role as the University's expert on all matters to do with personal computers. This is bound to continue although he is likely to be absent from the main campus visiting the regions for much of the year. Bahlman has no understudy whether local or otherwise, so when he is away from the main campus the Centre can provide no real assistance to PC users with problems. When his contract ceases the store of local PC-related knowledge which he is building up will disappear. In my view it is essential that a second academic level appointment be made to serve this area by the start of the second semester this year. ✓

- 2.4.6 It may assist NZ AID in undertaking to assist in funding the first 18 months say of a USP staff appointment (which is what I recommend for 2.4.5 above) to explore with Gregg the extending of his own engagement for another year. I believe that a fully funded appointee will be needed for the administrative work for that extra period; as the incumbent Gregg is by far the best appointee, given his proven competence; I believe that he would be favourably disposed towards an extension so that he can finish the job. If his term is extended he will not need resettlement in New Zealand at the end of this year, which could help the cash flow situation which funding Bahlman's assistant could create.
- 2.4.7 There is one further area in which NZ AID could play a most useful part during its Phase I period. The University has wisely decided to review the progress of its computing activities in the Extension Centres at the end of this year when computer course teaching has been completed for the first time but before Bahlman's engagement has ended. This will involve substantial travel costs but will be a good investment since it will strongly influence the size and balance of future services of various kinds both as between the different Centres and also as between extension and internal teaching. A New Zealand contribution to these travel costs would be most appropriate.
- 2.4.8 In summary I recommend expenditure on the second year of Phase I by NZ AID as follows:

	<u>NZ\$</u>
Bahlman completion and travel expenses.	?
Gregg completion, travel expenses and renewal for a further year.	?
Assistance with a USP programmer/analyst staff position (to assist Bahlman) w.e.f. 1 July 1987.	?
Library contribution.	5,000
Contribution to travel costs of USP staff - say Moutier and Extension Services representative - to review progress of computing in Extension Centres.	15,000

## 2.5 CONCLUSIONS AND PROPOSALS ON THE USP CONTRIBUTION DURING PHASE I

- 2.5.1 As already stated the University has established administrative and policy structures which engender a good deal of confidence. There is still much to be done in informing the University about the technology and what it implies.
- 2.5.2 It has obtained a very experienced Director for the Computer Services Centre. His appointment unfortunately ceases at the time when Phase I of the NZ AID project comes to an end also.

- 2.5.3 It also provided two additional staff positions - a secretary and a technician - which were helpful contributions at a time when the overall USP staff situation is one of great stress. Unfortunately the technician appointee, who was first class and from Australia, found that he and his family could not manage on the unsupplemented salary offered.

I recommend that this position be upgraded to a level where a senior development technician or a junior engineer can be successfully recruited and retained. An additional technician will be required for hardware maintenance early in Phase II.

- 2.5.4 The need for establishment of an additional programmer/analyst to work with Bahlman has already been noted above.
- 2.5.5 The space provided for equipment is generally adequate but with little room for expansion. There have been few power supply problems.
- 2.5.6 The Fiji telecommunication services have been slow in things like providing a single link on the main campus between two buildings which vitally needed it.
- 2.5.7 The space provided for staff is adequate in quantity for the present numbers of staff and varies between good and barely adequate in quality. One or two aspects of the physical services provided for staff would not be acceptable in New Zealand.
- 2.5.8 But the USP contribution which stands out and which will, if it continues, assure a successful integration of the technology into all parts of the university has been the intense and growing enthusiasm of growing numbers of people in almost all areas for the project. This has made it money very well spent.

### 3. PHASE II

- 3.1 The USP proposals for the second stage of the computer training program are appended to this report (see Appendix). They result from discussions taking place over an extended period within the university and involving at least five meetings of the Computer Services Committee. I attended the last two of these and as a result of this and my other discussions with university personnel I believe that the proposals reflect a fair view of the university's needs for further assistance at this stage.
- 3.2 USP is at the very early stages of its involvement with computing, particularly in comparison with other universities. It is entering the field at a stage when the technology is becoming much easier to use effectively. For this reason I believe that the proposed new facilities will be effectively utilised and taken up quickly.

- 3.3 I also believe that all the resources required for a successful implementation have been identified and are provided for in the proposal document, which sets out the contributions expected from all three parties to the proposed collaboration.
- 3.4 Accordingly the proposal has my full support, with a single reservation:
- 3.4.1 Without adequate support staff an attempt to install additional equipment other than that which is strictly 'more of the same' involving virtually no extra staff effort would be harmful to the University and a waste of money. The University acknowledges this in its request for Phase II (Section 3.3 of the Appendix) which considers favourably a recommendation to establish six new USP staff positions during the next four years. (These requirements assume the continued provision of two fully funded staff by New Zealand until the end of 1989. There may be other patterns of staffing provision which might enable the total requirements to be met more cost-effectively.)
- 3.4.2 As already stated I fully support the provision of the equipment recommended to an estimated total value of US\$660,000 during the years 1987 and 1988. Of this US\$260,000 could be usefully invested this year without any serious incremental cost in staff time. The remaining requests amounting to \$400,000 for 1988 will require the provision of additional staff at the levels indicated. The donors should satisfy themselves that these new staff will be available before proceeding to fund the 1988 portion of Phase II.
- (I believe that more healthy discussion of the place of new technology in USP's future will be provoked by the proposed redistribution of staffing resources to support it. USP's overall staffing situation is very difficult, and the new triennium which starts at the beginning of next year may not bring much relief. However, I am confident that the University will decide that it must proceed at least as far as the Phase II request indicates and will therefore find the staff. It follows that in the meantime both donors and those responsible for computing at USP should proceed on the assumption that the donors will be satisfied by the end of this year that the necessary staff will be forthcoming. In discussing staff needs the University will doubtless bear in mind that the administrative and document preparation uses to which the equipment is being put are already showing the potential for increased staff productivity. I believe that Phases I and II are likely to enable two, possibly three positions to be made available for redeployment as a result.)
- 3.5 I recommend that the project be reviewed in the latter part of 1988 but before the teaching year has ended. This review should consider progress both in Fiji and also in the regions. It is likely therefore to involve three to four weeks and travel to

several of the Extension Centres. It could be undertaken by one person but would require some secretarial and administrative assistance from USP at Lautala Bay.

#### 4. OTHER PROJECTS

There are two further projects of major significance to the University which are not covered by the Phase II proposal and I draw attention to these now.

##### 4.1 Library Automation

The University's Library is shortly to be transferred to a new building currently under construction and funded by the Australian Government Aid program. It has been believed that the same agency will fund the automated library system which the university requires, as a part of that project. Accordingly the Library's automation has never been considered by the University as a part of either Phase of the computer project described above. It is understood that the University's Librarian will seek funds from an alternative donor if confirmation of Australian funding is not forthcoming fairly soon.

I draw your attention to the slightly uncertain status of the Library's automation project. It is a relatively major one and the University will be ready to proceed with preparation for transferring to the preferred system, which has already been selected, later this year.

##### 4.2 Information Interchange by Intelsat Satellite

The University has been fortunate to be provided with 24 hour per day use of a half duplex communications link to almost all of its regions via the Intelsat 1 space station. This link is already used for voice communication between Extension units in Fiji and outlying regions.

There is surplus capacity available in the channel to permit a very useful quantity of exchange of data between computer systems on the main campus and the Extension Centres. This would enable, for instance, overnight updating of student record information for extension students. The much slower methods of communicating this information available at present to the University perpetuate a situation where accurate class lists for extension courses are sometimes still not available when the students sit their final examinations.

It would also enable lecturers' course materials to be sent out much more speedily and responsively to meet the needs of their students. Corrigenda could be dealt with expeditiously.

Some exploratory work on this project was carried out by the Centre's technician who resigned recently. His view was that the project was a practicable one requiring a moderate amount of development work to produce the necessary equipment to link the university's computers to the satellite dish in each location. This would be followed by some technician level activity to carry out the actual installation work in each place. The project is of a size that could perhaps be undertaken by a University Engineering School as a part of its Masters' research program. There would also be some necessary expenditure on communications equipment and other componentry.

I would not expect the project to cost more than NZ\$100,000 if undertaken in this way. Possibly it could be substantially less than that figure. It would enable the fullest use to be made of the Intelsat link and furnish another way of bringing the different parts of this unique university together. I recommend that a feasibility study at least be carried out as soon as possible.



John Good BSc(Hons), BCom, FBCS, FNZCS, MIDPM  
Consultant to the New Zealand Ministry of Foreign Affairs

24/1/87

THIS DRAFT WAS APPROVED BY USP COMPUTER SERVICES COMMITTEE ON  
14 JANUARY 1987. FURTHER DETAIL IS TO BE ADDED TO SECTION 4 BEFORE  
SUBMISSION TO US AID AGENCY, SUVA.

University of the South Pacific  
COMPUTER CENTRE

---

SUBMISSION TO THE UNITED STATES AGENCY  
FOR INTERNATIONAL DEVELOPMENT

AND

THE GOVERNMENT OF NEW ZEALAND

FOR

PHASE 2 OF A COMPUTER TRAINING PROJECT

---

Project Directors:      Dr R Chandra  
                                 Chairman, USP Computer Services  
                                 Committee

                                 and

                                 Mr N S Mountier  
                                 Director of Computer Services, USP

---

## 1 INTRODUCTION

Phase 1 of this project began in mid-1985. Computing equipment and activity at USP at that time was very limited by the inadequate and obsolete equipment. Phase 1 has already had a very large impact on the University, and we are grateful for the generosity and foresight of the donors for the considerable progress made. However, many of the facilities provided by it are already under great pressure. Most notably, the teaching laboratory with its 15 workstations has been heavily used from the outset, and in the second semester of 1986 there were some problems in its running due to the extreme pressures put on it, even with extended hours of use.

### 1.1 Objectives

The objectives stated in the 1985 proposal are still valid. The equipment and technical assistance provided in Phase 1 of this project has enabled progress to be made towards them. We now have a better picture of the extent of the task of meeting these objectives, and hence can set out the inputs needed over the next two or three years to move closer to them.

It may be useful to reproduce the 1985 list of objectives here.

- a) to offer advanced training in computer science at the bachelor degree level;
- b) to introduce computing related topics in a range of undergraduate courses;
- c) to offer computer awareness training within the countries of the USP region through continuing education courses at USP Extension Centres;
- d) to expand the use of computers in on-campus and extension courses at all levels;
- e) to develop new and more efficient methods for the production and delivery of course material;
- f) to support computer based research techniques in the University's Schools and Institutes;
- g) to strengthen the University's capacity to develop and apply computer based techniques to the administration of its programs.

## PHASE 2 OF A COMPUTER TRAINING PROJECT

---

In this proposal for Phase 2 of the project we aim to build on what has been achieved and plan to meet more adequately the above objectives by adding equipment, staff and the ancillary resources needed.

### 2 Resources now required

#### a) For teaching on Laucala Bay campus

On the basis of discussions with each of the teaching departments, some estimates have been made of the computing requirements of classes over the next three years. All departments expressed interest in teaching with computers, mostly in the areas of applications, and in almost all cases, specific existing courses that now require computer inputs were identified. Estimates were made of work-station hours required per teaching year, and this indicates a requirement of about 66 workstations needed to meet these requirements. This leads to a proposal to enlarge the existing teaching laboratory of 15 workstations provided in Phase 1, and to add two further laboratories. If one of these laboratories consists of terminals to a central computer such as a VAX, it will be possible to extend the range of teaching to a more advanced level in some areas, with the provision of suitable software.

#### b) For teaching off Laucala Bay campus

In this category come both Extension Centres and the Alafua campus in Western Samoa which houses the University's School of Agriculture. The Alafua campus has clear need of facilities for teaching computer use. No agricultural graduate should be without some skill and understanding of the use of computers in agricultural research and management, and it is likely that diploma students will also require some training in computer use. A group of 6 workstations should be provided to cater for the 130 students on that campus.

Teaching computing throughout the region presents a great opportunity. Courses are being prepared for extension use that will require a specified number of hours of computer use by each student. This means that each Extension Centre must have a PC available for student use when required, together with staff members able to offer student support. Only five of the extension centres were provided with appropriate equipment in Phase 1. It is essential that the other centres be also equipped for this purpose. It is also essential that student use be on a separate machine from that used by staff for administering courses, to avoid problems of security. Fifteen more workstations will be needed.

c) For production of teaching materials

Although word-processing is a requirement of any university, as it is of most organizations, there are particularly large needs associated with distance teaching. And as distance teaching is a major way in which the University fulfills its function for other countries in the region, this is an area of special importance to USP.

Distance teaching is largely conducted with volumes of written material prepared at the University by departmental lecturers in conjunction with course developers from Extension Services. These documents are revised from year to year, and word-processing is the only efficient way to handle them. A network of five PC's was installed in Extension Services in Phase 1 of the aid project, and they are performing well. They are, however, already overloaded, and the number of courses being offered to Extension students is growing rapidly each year.

A further 8 workstations are needed together with additional laser printing facilities.

d) For Research

Without research, university teaching withers. Future computing needs for research are always difficult to quantify. Academics whose research has computing requirements may not apply for jobs at a university which cannot offer adequate facilities, and others will channel their research efforts in other directions. What is quite clear from the experience of other institutions is that research use of computing will grow once there are reasonable facilities available.

Present research uses the statistical packages SPSSX and Minitab as well as some specialised software brought by individual staff members.

Discussions around departments have indicated research projects with substantial computing requirements. Such projects include:

- large co-operative project on crop modelling
- Fiji population statistics
- work in animal taxonomy
- geophysical analysis
- economic forecasting and modelling
- economic geographical and locational analysis
- surveys of industrial establishments
- surveys of companies

It is intended that most of these research needs will be met from the central computing facility provided with suitable software and supporting a campus network.

e) For Administrative Computing

Good progress has been made in establishing a student record system on the MicroVAX II. There is much work of this kind still to be done, and an integrated administrative system serving both internal and extension students will bring great benefits all round. There are needs for disk storage and software, and additional computer power.

f) Campus network

The provision of a campus network, which is now feasible, will assist most of the aims of the project. We propose installing an Ethernet coaxial cable to link the main buildings on campus. It is hoped also to link this with an electronic information exchange system which will use a satellite to communicate around the region.

This network will integrate the whole computer system on campus, and allow some of the present PC's to be connected to it. It will be particularly beneficial to aspects of extension teaching.

g) Software

Applications software will be needed for all purposes and adequate financial provision must be made for this.

3 Inputs

3.1 USAID

As in Phase 1 of the project, a USAID contribution would consist of hardware and software. Proposals for this in general terms are:

- 1) Two further teaching laboratories. One of these should be VAX-based, the other a network of personal computers. Each should provide 22 workstations plus 2 printers. The present laboratory should also be enlarged to hold 22 workstations (there are already 2 printers there).
- 2) A network of 6 PC's should be provided at Alafua campus, and equipment at each Extension Centre should be brought up to a minimum of 2 per Centre (one for teaching and one for administration and communication). The larger Extension Centres will need to be brought to a total of 3 PC's each.
- 3) A second and larger central computer linked to the present one

to support research, administration and advanced teaching. We are already pressed for disk-space on the MicroVAX, and the administrative and research loads are growing steadily. A limited amount of teaching is being done on it. It is sensible to expand the central computing facility with a further VAX computer since it is good equipment for our needs, it is very widely used in university environments, and it offers plenty of expansion possibilities within the one operating system. This would also support the campus network mentioned below. The central facility will also require a line-printer to handle large-volume printing and a laser printer, for high-quality printing. A good graph plotter should also be attached to this system.

- 4) A campus network. An Ethernet coaxial cable connecting the main buildings (each of the schools, the present library building the new library and the administration block) will provide immediate communications capabilities plus an excellent basis for future expansion. It will be necessary to connect the Technology Department and the Home Economics Department by separate cabling to this central network. It will also be necessary to use P & T lines to connect the Fiji Centre and the Institute of Marine Resources into the network. (It is planned that the present library building will reorganised to house Extension Services, the Media Unit and the Computer Centre).
- 5) Eight more PC's should be provided for the preparation of teaching materials, including 2 for course developers. Additional high-grade printing facilities will also be needed.
- 6) Six 'lap-top' computers to be used as a relocatable facility for staff giving short-courses anywhere in the region.
- 7) Software will need to be purchased for teaching and applications, as will a number of programming tools such as a 4th generation language (4GL).
- 8) It will be desirable to purchase for particular types of teaching some non-standard (ie. non IBM PC) microcomputers.

At this stage we can offer only approximate cost estimates for each of these items. Detailed costs will follow assessment and negotiation with potential suppliers. However, these approximate estimates are as follows:

	F\$
1) PC Teaching laboratory	65,000
Terminals for VAX-based teaching lab	35,000
2) Network of 6 workstations for Alafua	20,000

## PHASE 2 OF A COMPUTER TRAINING PROJECT

---

	15 PC's for Extension Centres (some with hard disk)	40,000
3)	VAX computer for central system with 20 terminals Printers, plotter	250,000 50,000
4)	Campus network with connection for 60 workstations	45,000
5)	8 PC's plus printer for course material preparation	30,000
6)	6 lap-top computers	20,000
7)	Software: for teaching labs for extension centres for course preparation for applications & programming tools	30,000 15,000 10,000 30,000
8)	Non-standard micros	20,000
		----- 660,000

### 3.2 New Zealand

In Phase 1, the Government of New Zealand provided technical support by sending computer staff for both long-term (2-year) and short-term periods. The effects of this assistance have been very significant indeed in helping the University take fullest advantage of the equipment provided. There is a great need for further staffing input to the project, and while some of this must come from the University, a further contribution from New Zealand in Phase 2 will be welcomed. This should be at a similar, or if possible slightly higher level than the Phase I input. There is currently some discussion going on of creative ways to take the fullest advantage of the New Zealand contribution, and the details must therefore wait till a later version of this document.

### 3.3 University of the South Pacific

The University undertakes to meet the recurrent costs associated with the project and to provide adequate accommodation for the equipment.

The 1987 figure for recurrent costs is \$78,000 and the submission for the 1988-90 triennium would increase it to about \$140,000 during Phase 2. It is planned to move the Computer Centre to give it

## PHASE 2 OF A COMPUTER TRAINING PROJECT

---

sufficient space to part of the present library building after the Library moves out. The Computer Centre move should take place in the latter half of 1988.

The third part of the University's responsibility is in staffing. At this stage, the University administration can only state its willingness to consider favourably the recommendations made on this subject. It is understood that the provision of the equipment in the later parts of the Phase 2 will be dependent on the University being able to provide the staff needed to support that equipment.

The present staffing establishment of the Computer Centre is 8; it is recommended that this increase to 14 by 1990 in the following stages:

mid 1987	1
1988	2
1989	1
1990	2

#### 4 Timing of Hardware Deliveries

It would be extremely helpful if the PC teaching laboratory could be installed before the end of July this year to be available for the second semester's teaching.

The next priority in time would be for some of the PC's for Extension Centres and some of those for course preparation. It would also be very desirable to install some additional central computing power before the end of 1987. This latter must precede the campus network. The terminals for the VAX-based teaching laboratory could be left till the second half of 1988, because space for that laboratory will not be available till then. The other items would be happily received during 1988.

Some tentative indications of initial cash flow for this plan would be:

Mid-1987	Teaching laboratory	65,000
	and software	15,000
Third quarter 1987	PC's for extension centres	
	and course preparation	40,000
	(part)	
Fourth quarter 1987	Central computer addition	140,000
	(part)	
		<hr/>
		<u>260,000</u>

The remainder to be subject to the staffing support discussed in 3.3 above and to be installed during 1988.

B