

**EVALUATION OF  
PAPUA NEW GUINEA FISHERIES DIVISION  
**FISHERIES INFORMATION MANAGEMENT SYSTEM****

*PROJECT NO. 874-0229*

prepared for

USAID/SUVA

by

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## INTRODUCTION

This evaluation was undertaken at the request of USAID, who provided the terms of reference for the project.† This report follows these terms of reference. During the period November 19 to November 24 the project documents and proposals were reviewed at the Forum Fisheries Agency in Honiara, Solomon Islands. At this time interviews were conducted with FFA computer services staff. The evaluation was continued in Port Vila, Vanuatu from 25 November to 27 November.

## IMPLEMENTATION OF THE PROJECT -- how did it proceed?

FFA staff indicated that USAID was responsive and efficient in giving needed approvals. There were no complaints from either FFA or PNGFD. The financial transactions also appeared efficient and relations with FFA and PNGFD are excellent. Staff from PNG went to Honiara to learn the setup of the Vectras provided under this project, packed them up, and re-installed them on return to PNG.

The only problem noted with the financial transactions was that expenditures by project on an item-by-item basis were not available. The FFA Accounts Manager being on duty travel at the time made it difficult to unravel exactly how much had been spent on each project and when. The raw information exists and everything appears to be in order, but it would be beneficial to keep separate budget accounts for each project.

The major problem with the project implementation was found in the training sector. The training provided was judged ineffective because staff interviewed were disappointed in the quality of the training and the staff who attended training were often not using the subject material in their jobs.

The project organization as provided by FFA was excellent, but the lack of a Computer Officer in PNGFD severely hampered the project. With the notable exception of much of the expatriate staff and two nationals, there is an apparent lack of motivation towards integrating the technology into the

† see attached

Department. The exclusion of expatriates from training by authority outside the Fisheries Division also hampered the introduction of this technology.

The project is well-conceived and well-organized by FFA and, if proper steps are taken (particularly as regards the hiring of a Computer Officer) it can be effective in meeting its goal of introducing computing technology into the Fisheries Division.

## THE APPROPRIATENESS OF THE PROJECT

### HARDWARE SELECTION

Hewlett-Packard hardware was chosen for the desktop PC's. Although more expensive than most similar hardware on the market, the choice of Hewlett-Packard systems, as discussed in the proposal, makes sense if for no other reason than their proven reliability. Their implementation of PC software is also very straightforward to the average user, the manuals are unusually clear, and their peripherals are well-integrated with the system unit. It is true that the short-term higher costs of HP equipment are outweighed by long-term savings in time and money because of HP's record of reliability.

In spite of their reputation there were some problems with the Winchester hard disk drives in two of the machines. One of the malfunctions occurred during the review. This is likely related to "dirty" power (although it is not possible to know for certain). All computers at PNGFD are supposed to have surge suppressors, but they were not purchased at the time of the review. It is recommended that surge suppressors (i.e. transient overvoltage devices) be of the silicon avalanche type. Inexpensive MOS-type surge protection are not recommended.

Additional microcomputers purchased by the Division are NEC APC-IV's (now renamed the NEC *Powermate* series). These computers are good value, and nearly as fast as the HP Vectras. At PNGFD HQ the NEC's are configured the same as the HP's and run the same software. With the exception of different keyboards, these computers are very compatible with the HP's.

LOTUS 1-2-3
MS WORD
MSDOS Ver 3.1 (now upgraded to 3.2)
BASIC Interpreter
MS-DOS macro assembler
Executive Memomaker
Gallery Collection (Chart & Draw)
Microsoft Windows
Aldus Pagemaker
Reflection 3
dBase III+
Norton Utilities
Training Software

Table 1. Principal Software Provided

Principal software provided is listed in Table 1. This collection of software meets the basic requirements for word processing, data base management, spreadsheet and management utilities. In addition, there are advanced programs (Gallery, Pagemaker, Windows) which may be useful, depending on the development of staff expertise and a perception of need. A suggested addition would be the *PCTOOLS* suite of utilities, which covers much of the Norton tools, but allows very easy file and disk system maintenance. Backups are done with a tape backup system on a weekly basis.

## TRAINING PROGRAMS

A 1-week training course at Management Technology Education in Sydney was provided for four staff members. This course covered DOS (1 day), LOTUS (2 days) and dBase III (2 days).

Another 3-day training session given by IBM2000 in Port Moresby. The students interview gave this training very low marks.

A 2.5 day training program by IBM2000 in Port Moresby was exclusively on Microsoft Word and attended by eight of the Fisheries Division secretarial staff.

One staff member spent a month in Honiara with FFA on attachment training. This training to FFA was judged good in that the trainee had time away from the office to study, but he expressed a desire for closer supervision and directed training by FFA staff. (Note: This is a general problem with attachment traineeships also experienced at SPC).

In concept the training programs were appropriate but in practice they were not.

Observations of their best national people in working with dBase III+ indicated a lack of familiarity and confidence with the system, although these two scientists are clearly capable of further development and deserve more training.

Much criticism of the IBM2000 training was heard. Apparently the instructors were not very experienced and the training equipment not fully operational.

Some of the staff reported they learned better with a tutor than with the training courses. It was suggested to the PNGFD Director that the balance of the training budget could be effectively spent on a training/programming consultant who was expert in the field of basic computer training.

## FACILITIES USAGE

The five HP Vectras, the NEC Multispeed laptop, the FAX machine and the peripherals provided under Phase I and part of Phase II are all in use at the Kanudi Headquarters. Table 2 lists the equipment by functional area.

- 4.1 Research (Kanudi) (2V)
- 4.1 Research (Kavieng) (X)
- 4.6 General Use (Kanudi) (P,F)
- 4.5 Economics (Kanudi) (V)†
- 4.2 Inspection and Surveillance (Kanudi) (V,F)
- 4.3 Resource Development (Kanudi) (V)‡

Table 2. Current usage of existing Phase I/II equipment.  
V=Vectra N=NEC MultiSpeed X=IBM XT(non-USAID) F=FAX  
†also used for administrative and secretarial work  
‡not functional at time of review — bad hard disk

This leaves several functional areas (see Table 3) in PNGFD to be supplied with computers under Phase II/III. The Vectra which was to be the LAN file server under the original Proposal, although unallocated, would definitely be useful as an additional workstation.

Considering the size of the Fisheries Division, the large budget is entirely justified. All initial facilities are being used extensively for word processing, program development and data entry.

- 4.1 Research (Wewak) (V)
- 4.1 Research (Daru) (V)
- 4.1 Research (Aiyura) (V)
- 4.4 IFAD (V)
- 4.6 Secretarial (V)
- 4.6 Computer Officer (V)
- 4.6 Original LAN server (EXTRA) (V)

Table 3. Planned usage for Phase II/III equipment still to be delivered.  
V=Vectra N=NEC MultiSpeed

## THE IMPACT OF THE PROJECT — what has it achieved?

Given that the project is not yet complete, it has already had an impact on data collection in the biological research area and the FFV licensing and monitoring, and in the support services provided by the administrative section.

### OBJECTIVES MET

For the *Information Problem Areas* as given in the Project Proposal, the following specific objectives have been met during Phase I/II.

#### 4.1 Research

A start has been made on biological stock assessments. Entry of prawn and lobster data is proceeding, but is hampered by lack of data entry personnel. Placing phase II/III computers in the outstations will enhance the data collection progress. Right now, the IBM-XT funded by FAO in Kavieng is being extensively used for inshore catch data, coastal fishing station statistics and biological data collection. LOTUS 123 graphics is currently being used to aid stock assessment of the Gulf of Papua prawn fishery.

#### 4.2 Inspection and Surveillance

The biggest impact has been made here. A start on a database, developed with FFA assistance, is used for data management of licensing, vessel registration, monitoring of foreign fishing vessel activity, and revenue monitoring. The databases would benefit from normalization and further development, but are currently adequate for data entry.

#### 4.3 Resource Development Branch

Catch statistics are collected only in Kavieng where the coastal station is monitored. Data is collected using LOTUS (a system set up by FFA staff). No analysis is performed on the data.

#### 4.4 International Fund for Agricultural Development (IFAD)

Objectives to be met await the acquisition of a computer under Phase II/III. There are lots of data and a large budget to manage in this area,

#### 4.5 Economics

The objective of making it possible to analyze market data has been met. Cost and return analyses of some prawn data are underway. The work done so far has used LOTUS to

perform the economic analysis. Analysis of tuna FFV data is used to report revenue and licensing information.

A sociological study of the bait fishery to establish rightful access to baitfishing areas awaits the appointment of a sociologist.

#### 4.6 Administrative and Secretarial Services

Equipment is extensively used for word processing at this time. The Division is looking for accounting software for financial management. The Phase II/III equipment will be necessary for full administrative and secretarial use. The NEC Portable is used by the Director primarily for report writing, contract development and other administrative tasks. LOTUS 123, Executive Memomaker, and dBaseIII are all used on this machine.

### EQUIPMENT USAGE

This is described in the previous section

### SIGNIFICANCE OF CURRENT USAGE

The equipment supplied by USAID has had a positive effect, especially in the biological research areas. Provided an effective Computer Manager is hired, the Division will be able to develop their data entry and data management techniques very effectively.

### CONTRIBUTION TO FISHERIES MANAGEMENT IN PNG

In the judgement of the evaluator the introduction of computer technology and training is a highly productive endeavour. Word processing always seems to be the first reason why microcomputers are desired; it is the least significant reason. It does provide higher quality output and easier review-and-revise operations, but it still remains a fancier form of typewriter.

The real advantages to development of computer capabilities lie in the areas of data management and analysis. Raw data collected from coastal and offshore fisheries may be processed and stored in a more manipulable form. Transmission of the same data to regional agencies is more efficient, and most important, the way is clear for on-site analysis for stock assessment and management.

The PNG licensing database and the biological data and stock assessment projects are the obvious contributors to fisheries management at this time. Clearly, the implementation of the outstation computers and their use in data processing is necessary to further this aim.

### WIDER ISSUES: what can be learned from this project?

#### FUTURE COMPUTER DEVELOPMENTS

Phase II/III implementation should proceed as soon as the equipment is needed with the proviso that a Computer Officer be hired and "on board."

It is suggested that attention be paid to the training component with an eye to advanced training (e.g. 2 week to 2-month attachments at SPC or FFA or advanced regional training programs) for Research and Economics officers (beyond basic skills) and on-site possible follow up training for secretarial and other support staff.

It is not recommended that IBM2000 be used for further training. A cost-effective solution to the training problem in this particular instance might be the hiring of a short-term consultant to provide tutorial-based training in-house.

## APPROPRIATE USAID FOLLOWUP

Training, consumables, hardware maintenance, software support and hardware and software upgrades will continue to be an ongoing requirement. USAID might consider a method whereby the region as a whole had access to the above under a support program at FFA or elsewhere.

One suggestion this reviewer has is for an employment of a "roving" computer expert who could visit the countries involved to follow up on the installation and staff development. This person would on-site consultation to solve computer-related problems. Since not all of the 10 countries involved in the FFA/USAID project have received their hardware, a phased approach to this suggestion would provide 3 to 4 weeks of consultation per country per year over the lifetime of the project.

## IMPLICATIONS FOR IMPLEMENTATION OF OTHER USAID FISHERIES COMPUTING PROJECTS

The danger is that the training may be wasted if that person moves on without passing on knowledge to their successor. It is very easy to waste thousands of dollars training the wrong personnel.

It is important that all of these Computer Projects make sure that the training is thorough. If anything, there needs to be more training — there is a tendency to *undertrain*. But what kind is best?

Experienced computer users are self-starters on new software products. After acquiring a software package, the "intuitive" user simply begins using the package, sometimes working through a tutorial, often referring to the manual only when something isn't obvious.

It thus appears as important to encourage enthusiasm and confidence than as to provide rote training. The basic training by experienced trainers is essential, but advanced training and access to consultation is equally important.

Therefore, after the initial training, the establishment of on-site followup training with a fisheries-oriented "consultant" may well be better than another training trip to Sydney or Auckland. Other options exist — attachment training or joint training workshops with SPC or FFA. Attachments have drawbacks in that they are often wasteful of the host staff time and often stressful on the student. A better method is to organize regular training workshops with at least 5 students in attendance. The provision of these advanced services would greatly enhance the impact of the USAID program.

## CONCLUSION

The Papua New Guinea Fisheries Division has definitely benefited from this project, which is well-conceived and well-administered by FFA. The reservations regarding training and Computer Management within PNGFD are being addressed by the Director and the project has a high probability of success.

**TERMS OF REFERENCE FOR THE  
EVALUATION OF USAID  
COMPUTER REHABILITATION PROJECTS**

**a. IMPLEMENTATION OF THE PROJECT — how did it proceed?**

- Were any approvals needed from USAID timely?
- Were the financial transactions efficient?
- Were the expenditures properly accounted for?
- Were the equipment and software delivered effectively?
- Did the staff have effective access to training?
- Was the overall organization of the project effective?
- Were there any other difficulties or constraints in the implementation of the project?

**b. THE APPROPRIATENESS OF THE PROJECT — was it well designed?**

- Was the hardware the right choice?
- Was the right software provided?
- Were training programs appropriate?
- Was the budget appropriate?
- What level of use is made of the facilities?

**c. THE IMPACT OF THE PROJECT — what has it achieved?**

- Has it met the objectives set?
- What is being done with the equipment?
- How significant is the work that is being done?
- Where can it be expected to contribute to the better management of the country's fisheries resources?

**d. WIDER ISSUES — what can be learned from this project?**

- How should work in this area proceed in future within the fisheries department?
- What followup might be appropriate for USAID?
- What can be learned for the implementation of other USAID fisheries computing projects in the South Pacific?
- What can be learned for improving the development of fisheries computing capacity in South Pacific island countries generally?
- What other points can usefully be drawn from the project?