



Annual Report

Mapping and Land Information Division

Department of Lands and Survey
Ministry of Lands and Mineral Resources

for the period

01 January, 2004 to 31 December, 2004

*Department of Lands and Surveys
PO Box 2222
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ANNUAL REPORT - 2004

MAPPING AND LAND INFORMATION DIVISION

1. Summary

The Mapping and Land Information (M&LI) Division is responsible for the production/publication and upgrading of various types of maps and plans, the acquisition of aerial photographs and for the development, implementation and maintenance of the computerized national Land and Geographic Information System (LIS & GIS).

The division is divided into three sub-Divisions namely: the Fiji Land Information System (FLIS), Photogrammetry and Mapping, and the Technical sub-Divisions. The three sub-Divisions are further divided into Sections except the FLIS, a unit of its own. The Photogrammetry and Mapping includes the Photogrammetry, Cartographic, Computerised Cadastral Mapping System (CCMS) and FijiTopo Sections, and the Technical consists of Draughting, Statutory, Systems Support, Geographic Information System and the Records/Map Room Sections.

2. Annual Report - 2004

This Report is presented as a summary of the M&LI Division activities/projects, staff, budget, etc. and the challenges met during the operational year 2004. It focuses not only on the major achievements but also on many other related activities.

The Division continued to lose experienced staff and coupled with the Public Service Commission (PSC) standing policy of 'zero growth', it had to dig deep and rely heavily on existing in-house staff to cope with the tasks at hand and ensure that targets were kept in sight and projects carried out in a professional manner and within budget. It is well noted the new technologies around us and the Division had reacted positively and moved in line with emerging technologies despite limited funding and skilled manpower resources. However, the response from the staff had been overwhelming.

Training of local staff continued to be of top priority. The implementation of the FLIC 2004 Training Programme provided an excellent platform and surely promoted the level of skills and confidence at all levels of operation. The Fiji Land Information System (FLIS) Support Centre continued to support and organise more training in specialised areas both locally and abroad and it was very encouraging to note the strong support and emphasis placed on 'human resources development' (HRD) in Information Technology (IT) areas by donor agencies in particular the Public Service Commission, FAB, AUSAID, NZAID and JICA. On behalf of the Division and the Department in general, I say to you all; *Vinaka Vakalevu*.

The Fiji Public Service Survey Draughting Examinations - Stages I and II, were held in May and November 2004 and recorded the average pass rates of 71% and 100% respectively for May and 50% and 100% for December 2004. Considering the changes in 'doing things' eg. use of computers, etc. there is a strong commitment by the Examination Committee to review and revise the existing syllabus to reflect and in line with the current work situations. It is hoped that the new syllabus will be in place and introduced in 2006.

In the IT arena, three entities namely; **people**, **data** and **technology** are considered at all times. All three are inter-linked and inseparable. However, we believe that **people**, is the most important of all for without them, technology and data would be meaningless. It is therefore critical that Human Resources Management and Development is promoted/enhanced at all levels to ensure sustainability and continuity in the activities and businesses of the Mapping and

Land Information Division. At the same time, it is critical that the Division recruited the right people with the right qualification, experience and attitude.

It has been a concern that the various sections of the Division are not housed in one locality. This is out of our control. This is also true with the Department and the Ministry in general. It is hoped that all the Divisions of the Department of Lands and Survey would be housed under one roof in the near future. So much can be achieved in terms of effectiveness and efficiencies in the ways we carry out the businesses of the Department for the Government and the public at large. We have found that one of the reasons of 'data mismatch' in FLIS core systems was that, these core FLIS systems operate in isolation from each other and common fields had to be captured more than once, thus allowing greater chances of making mistakes. Until all offices of the Department are located together in one building, this difficulty would continue.

It is encouraging to note here that PSC is committed to locating all Divisions of the Department in one building. This would probably come true in late 2006.

3. External and Internal Outputs of the Mapping & Land Information Division

3.1 External Outputs:

3.1.1 Ministerial Support Services:

This involves the provision of ministerial support services to assist the Minister for Lands and Mineral Resources meet the various responsibilities and obligations associated with being a minister, a member of the Cabinet and a Member of Parliament. The services provided in this output primarily include preparation of the Minister's annual accountability documents to the Parliament; preparation of responses to Parliamentary Questions and inquiries and replies to general ministerial correspondence, speeches, press releases and secretariat support to the Minister.

3.1.2 Mapping Services:

3.1.2.1 National Topographic Mapping Series:

This involves the design, construction and publication of the national topographic mapping series covering land and reef areas such as 1:50 000 and 1:250 000 series. The maps are derived from aerial photographs and details are verified by field inspections. Such maps are available in hardcopy and digital formats and are used by other government agencies, land developers and planners, utility/infrastructure agencies, etc. and the public in general.

3.1.2.2 Project Mapping - Large Scale:

This output involves the production of large-scale topographic maps of project areas of specific design and requirements for government and non-government agencies.

This is a requirement by the approving authorities that large scale topographic maps of project areas to accompany application for land development. Map scales range from 1:10 000 to 1:500 with contour intervals as low as 0.5m depending on final output scale.

3.1.2.3 Thematic Mapping:

This type of mapping involves customized and special purpose mapping with a 'theme', thus the name. Includes Street maps for cities and towns, School maps (primary and secondary schools) published in collaboration with the Ministry of Education, Census mapping, Election mapping, etc.

Also includes small-scale 'general purpose' maps of Fiji of scale such as 1:500 000, 1:750 000 and 1:1 500 000 of the whole of the Fiji Group.

3.1.2.4 Cadastral Mapping:

This involves the compilation and maintenance of cadastral maps derived from survey plans and Native Land Commission surveys. Such large scale (1:10 000, 1:5 000 and 1:1 000) maps show ownership and land tenure boundaries and are available in hardcopy and digital formats. Users of this output include other government land-based agencies, land developers and planners, utility/infrastructure agencies, Local Authorities, etc. and the public in general. The Director of Lands and Surveyor General is the custodian of such information.

3.1.3 Aerial Photography Services:

This involves the negotiations and capture of aerial photographs required by government and private agencies as sources data for specific purposes such as Mapping Updates, Agricultural Census, Soil and Crop Evaluation, Forest Monitoring, Squatter Monitoring, Disaster Management and other land and coastal monitoring and mapping activities.

3.1.4 Information Services:

This involves the collection, storage and supply of land and geographic information to support the social and economic development, administration, management and planning of limited land resources and environmental management of Fiji. This includes information on land surveying, survey plans, property valuation, thematic maps, legalities, land tenure and ownership. The Director of Lands and Surveyor General is the custodian of core government assets such as roads and related data. See *Appendix 1* for listing of computerised systems.

3.1.5 Fiji Public Service Survey Drafting Examination:

This involves the administration of the Fiji Public Service Survey Drafting Examination which includes the preparation and conduct of lectures and examinations. The candidates for this output are nominated from personnel in government, statutory organisations and private agencies that are involved in surveying and engineering drafting and other related activities.

3.2 Internal Outputs:

3.2.1 Historical Searches on Land:

This involves carrying out historical searches on State Land With Title and also State Land Without Title and other types of land. Such searches are usually carried out at the National Archives, Registrar of Titles, Native Lands and Fisheries Commission, Department of Lands and Surveys, etc.

3.2.2 Preparation of Diagrams:

This involves the preparation of various types of diagrams such as Locality Diagrams, Lease Diagrams, Land Acquisition Diagrams, Land Transfer Diagrams, etc.

3.2.3 Public Counter Services:

This involves the provision of services to the general public at the Public Counter in the Map Room. Services include map sales, aerial photograph sales, land tenure search, land ownership search, supply of survey plan copies, noting on cadastral maps, dyeline copies of cadastral maps, numbering of new survey plans, etc.

3.2.4 Development and support of Computerised Systems:

This involves the development of computerised systems, purchase, installation and testing of computer hardware and their maintenance. The department is very much dependent on computers and it is critical that computer hardware and software are in working conditions at all times.

3.2.5 Survey Plan Coordination:

This involves the calculation of coordinates of approved survey plans that would enable such plans to be charted and recorded on cadastral plans. It should be noted that without coordinates (boundary mounds/pegs, control pegs, etc.), it would be impossible to correctly relate the actual survey carried out to the ground. The Notices to Surveyors allow that land survey of a particular category, can be carried out and approved as to survey without fixing co-ordinates to boundary pegs.

4. Major Achievements of the Year

Some of the major achievements of 2004 were:

- completed development of *VanuaView Customised* for Ministry of Health, Fiji Police, National Fire Authority and Vodapone Fiji Ltd.
- sold 28 licenses of *VanuaView Standard* during the year. Total number of *VanuaView Standard* sold to date is 72 licenses. Total revenue generated for the year was \$17,006.75
- completed Phase I of Re-design of Lands Rental System. Phase II in progress.
- completed Fishing Rights Mapping & Information System for Native Land & Fisheries Commission (NLFC) office. To be handed over in early 2005.
- completed polygonisation of Cadastral mapping (approx. 91,119 parcels) and Native Land Commission (12,540 parcels) mapping systems. FijiTopo in progress (7 layers).
- completed GIS Pilot Projects for Suva City Council and Public Service Commission.
- established GIS Section for the Department with initial staff of three (3). Had started development of *VanuaInfo*, a GIS system for management of State Land. Also established *VanuaInfo* Task Team.
- scanned 16,413 survey plans during the year. At the end of the year, a total of 31,680 survey plans had been scanned. Scanned data available for viewing and printing in Suva (HQ), Lautoka and Labasa divisional offices. Survey plans already scanned have been stored away.
- presented Sugar Industry GIS Support system outputs to major stakeholders. To complete in mid 2005.
- completed re-design and customisation of Govt Quarters and Offices Mapping System for PSC. Combined effort with PSC.
- developed Website for Dept of Lands & Survey. To be launched in early 2005.
- completed the design, construction and printing of five (5) 1:50 000 Topographic map sheets namely: Vunisea (N32), Wainikoro (R22), Wainika (S22), Yacata (T25) and Naitauba (U25).
- completed the amendments/revision and printing of three (3) 1:50 000 Topographic maps – Ovalau (P27), Momi (L28), and Sigatoka (L29).
- completed design, construction and printing of Labasa Street map.
- charted into Computerised Cadastral Mapping System (CCMS) a total of 467 approved survey plans consisting of 1,669 parcels.
- a total of 1,588 Lands Department (LD) files were received and actioned by the Division requiring actions of various types. Coloured diagrams totalling 3,585 prepared.
- total revenue collected by the three sub-Divisions during the year for the sale of maps, photographs, project mapping (digital and hardcopy formats), digital cadastral and topographic data, etc. was **\$112,153.26** (Division's total budget for 2004 was

\$222,249.00) – a 50.5% recovery. The majority of government requests were not charged for.

- developed, implemented and monitored progress of the Division's Annual Work Plan for 2004.
- developed, implemented and monitored progress of FLIS Annual Work Plan for 2004.
- developed, implemented and monitored progress of FLIS Training Program for 2004.
- compiled and submitted to Management the Division's Y2003 Annual Report.
- compiled and submitted new and on-going Division's Budget Expenditures for 2005.
- continued to publish quarterly FLISNews and periodic FLIS Fliers.
- arranged/supported 40 training programs (local and overseas) with total attendance of 91 Divisional staff (some attended more than one program); and
- in addition, 5 Divisional staff attended the University of the South Pacific (USP) as part-time students, with one completing the BA Land Management & Development degree.

While excellent results were achieved in 2004, there are still continuing/ongoing projects to be completed and surely rooms for improvements and enhancements in the systems. In line with world trends, the activities of the Division are dynamic that show no immediate indication of being 'completed'. As users get familiar with the systems and products, their expectations and ideas gradually increases which lead to the need for enhancements, etc. and this is healthy for our business, to meet their changing needs. In addition, other organisations have realised the usefulness of computerised systems (GIS/LIS/RS) and have made positive in-house initiatives to introduce the technologies within their respective jurisdictions. It is therefore important for the success of the FLIS programme in particular, that these agencies are supported in full and encouraged to take full control and ownership of their systems in terms of manpower and funding with minimum reliance on the FLIS Support Centre.

5. Summary of Achievements of the Year 2004: listed by sub-Division

5.1 Fiji Land Information System (FLIS) sub-Division

5.1.1 Develop *VanuaView* :

- completed *VanuaView Customised* for Ministry of Health, Fiji Police, National Fire Authority and Vodapone Fiji Ltd.
- sold 28 licenses of *VanuaView Standard* (CCMS) with total revenue of \$17,006.75
- distributed updates to all 72 *VanuaView Standard* customers
- continued to make *VanuaView* presentations for marketing purposes to various committees and agencies in Suva, Lautoka and Labasa

5.1.2 Develop *VanuaInfo* - State Land Administration (GIS) System:

VanuaInfo will be developed in 3 Stages based on graphical data – CCMS, FijiTopo and NLC maps.

Stage 1: - involves identifying/locating all original NGs and CGs. Then a search to identify State Land (With Title & Without Title) will follow. In addition, Schedule A & B Lands, Native Land and Private Freehold land will also be identified. This will be overlaid with CCMS to identify surveyed and un-surveyed areas that should give an indication of vacant or unsurveyed State Land for development. A search will then follow to identify State land through CT, Cert of Transfer, etc.

In addition, the System should also identify locations of government occupations and interests within Native land Schedule A & B.

Stage 2: - link details/attributes of every parcel including Lease, Valuation & Rental data.

Stage 3: - include other Government agencies datasets, eg. Titles, Bureau of Statistics data and Government assets in particular roads with their legal status.

During the year, a **GIS Section** based at FLIS (temporary) was established to primarily develop and manage *VanuaInfo* and its operations.

The section is initially made up of three (3) local in-house staff with strong GIS background. It is anticipated that the Section will grow in the near future.

In addition, development of a linking database to link the base map (CCMS) to Lease Admin system was completed and implemented. The first matching process resulted in 56% match rate.

Updating/forced matching of unmatched records in progress.

5.1.3 Redesign of the Lands Rental System:

The Redesign of the Lands Rental System that is housed at ITC is running on schedule and carried out in consultation with ITC Services staff. The redesign is carried out in stages.

Stage I: Redevelopment of the Rental System

Completed and launched on 19 April 2004.

Stage II: Enhancements Development

In progress. Analysis of enhancements completed and database development – design of reports, forms, etc. in progress.

In addition, a new fileserver was purchased and installed at ITC to improve access and management of the enhanced Rental system.

Meanwhile, staff at Divisional offices were trained in the new system. Further more, the Divisional offices at Lautoka and Labasa were installed with cables to create inhouse LANs.

To complete by the third quarter of 2005.

5.1.4 Develop Fishing Rights & Information System:

Hardcopies of scanned data superimposed with FijiTopo data were printed and given to NLFC for verification. Verifications and updating of data were completed and the new System is now in operation at the NLFC office.

The official handing over together with final technical documentations and User Manuals was done in January 2005.

5.1.5 Complete Stage I Systems Migration and Integration (CL Admin, Valuation & Rental Systems):

It is necessary to integrate three (3) of the 'core' systems that had been developed and operating separately since FLIS establishment. The Lease Admin resides at Lands HQ, the Valuation system at Valuation office and the Rental system at ITC but all have the same source – LD lease files. This project would drastically improve one of the major problems that we presently encounter, ie. 'data quality'.

This project would need the assistance of offshore expertise. The New Zealand Government, through the FLIS Review, has been requested to assist. It involves the migration of the database system from AREV to ORACLE and integration of systems.

The Review of FLIS has been completed and this project is one of the recommended priority tasks to be undertaken. It is anticipated that the project will commence in the next New Zealand Government financial year – July 2005 to June 2006.

5.1.6 Develop Sugar Industry GIS Support System:

Work continued on the ACIAR project and this is for FLIS to develop a Decision Support System for the Sugar Industry. Progress depended very much on the support from ACIAR and NLTB. Completed capture of all 40 Sector Maps in Viti Levu & Vanua Levu.

Project is expected to be completed by September, 2005.

5.1.7 Develop Survey Plan Imaging System:

Project to scan approx. 47,000 approved survey plans had started using the scanner with Mineral Resources Dept. on Thursdays and Fridays (full days) and also Saturdays if necessary. Provided we have funds, two shifts could be activated. In addition to survey plans, 427 NLC maps have also to be scanned.

Total number of survey plans scanned during the year was 16,413. All scanned survey plans totalling 31,680 (68%) can now be viewed and copies made at GB Public Counter and users at HQ through the network, and also available at Valuation Office, the Divisional Offices in Lautoka and Labasa, Central Eastern Division and Control Office in Suva.

The number of plans scanned will surely accelerate as and when the new photographic scanner (A3) arrives and installed in Government buildings.

Expected to be completed by end of 2005.

Need to prepare procedures of 're-creating' missing survey plans.

5.1.8 Complete Polygonisation of CCMS (91,117) & NLC (12,540) Parcels:

All Native Lands Commission (NLC) and Computerised Cadastral Mapping System (CCMS) parcels have been polygonised – a total of 103,657 parcels.

Verification and labelling of polygonised parcels have also been completed.

This task is necessary before they can be utilised as intelligent datasets particularly in GIS applications. This structured dataset will be the bases for the State Land Management GIS Project.

In addition, the polygonisation of the 7 layers of FijiTopo has been commenced. Only Hygro layer has been completed. To continue in 2005.

5.1.9 Develop Valuation Mapping System:

Valuation Mapping Pilot Project of Savusavu Town completed. As a result, GIS mapping for Lautoka City in progress, but very slow in progress.

Data capture and verification of data of Lautoka City carried out at Valuation Office – only 10% completed (700 out of 8,300 records). To continue in 2005.

5.1.10 Develop National Health GIS – Ministry of Health:

To develop a national GIS based Management System for the Ministry of Health. Data capture (Nursing Zone boundaries and attributes) and verification completed.

Project completed.

5.1.11 Develop Community Management GIS – Ministry of Multi Ethnic Affairs:

One of the datasets that is widely referred to is 'community based information'. The system would address the need to record, map and report on Government Projects in various Districts and Provinces and also to monitor progress of these projects.

Data capture is in progress with ministry of Multi Ethnic Affairs. Expected to be completed in early 2005.

5.1.12 Develop Urban Land Use Mapping – Dept of Town & Country Planning

Data capture completed and hardcopies sent to Dept of Town & Country Planning for verification. Very slow in progress.

To complete by end of 2005.

5.1.13 Develop Pilot Projects:

i. Suva City Mapping System

A GIS Pilot project for Suva Ward was developed in consultation with the Suva City Council GIS officer incorporating data from PWD Water Supply and Sewerage and FEA, etc.

The project was presented to the SCC Councillors with recommendations one of which was to establish a GIS Unit within the Council to develop and manage its in-house GIS application. This has been approved by SCC.

5.1.14 Develop Website for Dept of Lands and Survey

A new project for 2004. Completed development of Website for the Dept of Lands and Survey. Data collection in progress. Planned to be launched and go live in early 2005.

Website address is: www.lands.gov.fj

5.1.15 FLIS Network – Upgrade/Extensions, etc:

▪ Servers:

Daily monitoring of the eight (8) servers.

▪ Hardware & software:

Purchased, installed and tested new hardware and software. Ensured stable network infrastructure.

5.2 Photogrammetry and Mapping sub-Division:

The Photogrammetry & Mapping sub-Division is responsible for the acquisition of Aerial Photographs, the production of Topographical/Thematic maps and the management of CCMS and Fiji Topographic database. It provides such services to Government and Non-Government Organisations, and the general public upon request. These services cater for Land Development, Resource Management and Inventories, Environmental and Disaster Assessment, Computerised Topographical Information or Data, etc.

Total revenue generated by the sub-Division at the end of the year was **\$40,971.22**

5.2.1 Projects and Activities:

5.2.1.1 National Mapping Programme - 1:50 000 Series:

Corrections and/or amendments were carried out on the following map sheets: Macuata-i-Wai (P22), Cicia (U27, T27), Nayau (U28), Daveta ni Kalavo (P28), Naviti (L25), Wainikoro (R22), Savusavu, Ba & Sigatoka Towns, and Momi (L28).

Efforts were made to map outlying reefs in the Bligh Waters in the following map sheets: Naviti, Nacula, Yawini and Ceva-i-Ra but were unsuccessful because of un-availability of photo controls. In total, there are seven (7) map sheets covering outlying reefs of north-west Vanua Levu and also north of Viti Levu that cannot be mapped because of the absence of photo controls. The Hydrographic Survey of the Marine Department has been continuously asked to assist.

5.2.1.2 Project Mapping (Large Scale):

A total of 10 large scale Project Mapping were done during the year as described below. Projects shown in *italic* were not paid for yet cost indicated.

Area	Scale	C.I	Cost	Client
<i>Tavakubu Cemetery</i>	<i>1:1,000</i>	<i>1m</i>	<i>\$2,000.00</i>	<i>Prisons Dept</i>
Natadola	1:2,500	2.5m	\$1,855.38	USP
Ba/Sigatoka Hydro	1:5,000	2m	\$6,500.00	FEA
Garrick Estate (Verata)	1:5,000	5m	\$1,120.00	F. Khan & Assoc.
Tulani, Koro	1:2,000	2m	\$1,758.00	Prosurvis
Bayview Heights	1:1,000	1m	\$2,300.00	Rupeni & Assoc.
<i>Pacific Village</i>	<i>1:500</i>	<i>0.5m</i>	<i>\$2,500.00</i>	<i>Min Foreign Affairs</i>
<i>Naseyani</i>	<i>1:1,000</i>	<i>1m</i>	<i>\$2,500.00</i>	<i>Rt. Ovini Bokini</i>
ATH Site, Vatuwaqa	1:1,000	Planimet	\$1,100.00	Rupeni & Assoc.
Ocean Pacific Hotel	1:1,000	1m	\$1,500.00	Wood & Jepson
Total Revenue Collected			\$16,133.38	

NOTE:

The majority of mapping projects mentioned above were digitally captured, edited and printed on matt transparent films otherwise, manually compiled.

5.2.1.3 Aerial Photography:

No aerial photography was done during the year due to unavailability of fund and aircraft. Budget submission made to Min of Finance for 2005.

5.2.1.4 Prints of Aerial Photographs:

- i. Photo Contact prints 633 frames
- ii. Photo Enlargements 580 prints
- iii. Film Diapositives 16 frames

Total revenue for providing the prints above were as follows:

- i. Private - revenue received **\$13,882.27**
- ii. Government requests \$ 2,119.74 (mostly for the Dept)

5.2.1.5 Clean, Featurise & Attribute line, point and area symbols:

All scanned topographic map sheets of scale 1:25 000 required 'cleaning', 'featurising' and 'attributing'. Each map sheet has six (6) layers/overlays namely: Structure, Transport, Hydro, Survey, Terrain and Vegetation.

The task of verification, edge-matching and updating is a continuous process. During the year, the unit had completed the verification, edge-matching and updating of two themes namely: Structure and Survey for all completed topographic files of 1:50 000.

Five (5) map sheets namely: Cicia (U27), Nayau (U28), Daveta-ni-Kalavo (P28), Naviti (L25) and Lomaloma (V26) were digitised, cleaned, featurised and attributed.

5.2.1.6 Charting, Noting of New Survey Plans & Updating of Survey Plan Journal:

Tasks	SO		DP		Other	Total		Remarks
	Plans	Parcels	Plans	Parcels		Plans	Parcels	
Charting	259	?	191	?	17	467	1,669	Chart/record approved survey plans in CCMS.
Noting	164		137		0	301		Note newly lodged survey plans in CCMS.
Updating of Survey Plan Journal	284		169		264	717		Complete changes in Survey Plan Journal System.

5.2.1.7 Adhoc Tasks – Revenue Generated:

Tasks Descriptions	CCMS & FijiTopo	Remarks
Private Requests	\$10,955.57	Total revenue collected.
Government Requests	\$22,342.61	No charges levied.

5.2.1.8 VanuaView Updates:

VanuaView is a viewing system based on Cadastral, FijiTopo and NLC maps. The system is available at HQ Govt Buildings, Divisional offices (DSW, DSN, DSCE, Control) and numerous Government and Private agencies. Particularly with Cadastral dataset, changes to the database is happening everyday as newly approved survey plans are charted into the system. As changes are made, they are reflected overnight in the *VanuaView* system with HQ.

Else, progressive changes are sent to FLIS for distribution to all *VanuaView* customers every week.

5.2.1.9 Publish Topographic Maps – 1:50 000 Fiji Map Series. Refer **Appendix 1**.

- a). Completed the digital production (design, construction, field check, printing) of the following new Map sheets. The Bluebird Printers was in a position to print the maps in the whole of 2004 as listed below. Bulia (O31)
- i. Vunisea (N32)
 - ii. Wainikoro (R22)
 - iii. Wainika (S22)
 - iv. Yacata (T25)
 - v. Naitauba (U25)
- b). However, a number of maps required re-printing during the year with amendments added manually. All these maps were printed by Bluebird printer:
- i. Ovalau (P27)
 - ii. Momi (L28)
 - iii. Sigatoka (L29)

c). Map Production (digital/manual) in progress

- i. Udu Point (S21) *digital*
- ii. Rukuruku Bay (O23) *digital*
- iii. Rabi (S22) *digital*
- iv. Labasa (Q22) *digital*
- v. Macuata-i-Wai (P22) *digital*
- vi. Taveuni (S24) *digital*

5.2.1.10 Thematic Mapping:

a). Map Production and Printing Completed/Progress

- i. Labasa Street Map 1:10 000 (new version) published– 5,000 copies printed.
- ii. Ba, Savusavu and Levuka Street Maps in progress – to be published in 2005.
- iii. World Map (A3 size) in progress.

b). Special Tasks: completed/progress:

- i. Plotting of 1 minute graticule ticks in their true geographic locations in all topographic map sheets in progress – 7% completed.
- ii. Converted 1:50 000 topographical specifications into digital format by re-typing and verified – in progress.
- iii. Review of Operational Manuals in progress – Computer Assisted Mapping (CAM).

5.2.1.11 Cadastral Mapping – Digital Maps:

A total of 427 metric sheets on scale 1:1 000 of Viti Levu were 'line cleaned' during the year. The balance of 108 map sheets are yet to be cleaned and should be completed in 2005.

As part of this activity, 17 new road names were added to the database – CCMS.

5.3 Technical sub-Division:

The Technical sub-Division is made up of four sections namely:

- i) Statutory
- ii) General Drafting
- iii) Records/Map Room
- iv) System Support

It should be noted that the sub-Division is also represented in Divisional Offices in Lautoka (Western) and Labasa (Northern). Their contributions are reported by Divisional Offices and therefore not reflected in this report.

5.3.1 Special Jobs:

These are some of the special tasks undertaken by the Technical sub-Division annually;

- Stores inventory and records – Board of Surveys
- Indenting of Drafting Instruments and materials overseas.
- Ordering and purchasing of Drafting materials and instruments locally.
- Receive and issue of Drafting instruments and materials to M&LI sections.

Below are the various services provided by the individual Section during the subject year.

5.3.2 Statutory sub-Section:

A total number of 651 LD files were received during the year for the various tasks listed below:

Activities	Acquisition Diagrams		Road Legalities	Historical Search	Dedication	Verification/transfer of LD files
TOTAL	276 files/sets	1,932 copies	23 new survey plans	5 files	31 cases	336 files.

Towards the end of 2002, it was approved by Cabinet and Gazetted that all State Schedule A & B lands to become Native land. This section was given the responsibility to verify and transfer all lease LD files within Schedule A & B lands to NLTB and at the same time to update all manual records with the Director of Lands and Survey. This was basically completed in 2003.

However, it was found that some of the existing leases, as a result of the change in tenure, were now physically located within two tenures, namely State and Native land. The section reviewed 88 files of this nature and duplicate files were sent to NLTB.

5.3.3 Systems Support:

This section undertook various tasks to maintain the network/computer systems within the Government Buildings and Valuation Section of the Department of Lands and Survey. To achieve this, the following continuing tasks were carried out:

- (i) Monitored daily File Servers performances.
- (ii) Carried out daily, weekly, monthly and yearly backups.
- (iii) Generated reports of various types as requested by Management on operational systems.
- (iv) Verified/updated Systems as need arose.
- (v) Attended to systems problems.
- (vi) Enrolled new users on LIS-GB and VAL-FS Servers for access rights to various FLIS Systems.
- (vii) Organised, purchased, installed and tested new hardware and software.
- (viii) Carried out and monitored good systems practices within all Divisions and FLIS systems.
- (ix) Maintained good relations with all stakeholders.
- (x) Always kept abreast with new technologies.

5.3.4 General Drafting:

Revenue collected directly from services provided by the sub-section was **\$54,175.29** as per detail below:

Support Services Provided through LD files:

Activities	Locality Diag.	Approval Notice	Lease Diag.	Advert Diag.	TAW	Noting	License Diag.	Vesting	Misc.	Total
TOTAL	89 files 241 prints	45 files 188 prints	246 files 1,058 prints	12 files 46 prints	9 files 36 prints	546 files 546 prints	9 file 20 prints	2 files 51 prints	13 file 13 prints	971 files 1,653 prints

5.3.5 Records sub-Section:

5.3.5.1 Services Provided through Public Counter

Revenue generated from services rendered to other Government Departments, private sectors and General Public is tabulated below:

Activities	Map Sales	Photocopy		Plan Lodge & Fee	Record & Number Survey Plans
Government	1,316 for \$5,509.92	64,454 prints	\$426.67	112 plans	121 DP plans
Private	9,982 for \$24,992.85	2,846 prints	\$7,416.63	\$6,752.34	110 SO plans
TOTAL	10,871 for \$30,501.94	67,300	\$7,842.30	\$6,752.34	231 survey plans

Continued:

Activities	Field Books	Plan Imaging	Plan Forms	VanuaView Prints	Lamination	Aerial Photos Prints		Public Counter Customers	
Government	10	49 for \$11.24	2	263	\$32.60	30 for \$609.31	559	\$5,599.92	6,340 served at the public counter
Private	38 for \$396.00	40 for \$196.14	143 for \$1,287.00	398	\$990.70	50 for \$866.69	805	\$11,276.94	
TOTAL	48 for \$396.00	89 for \$207.38	145 for \$1,287	661	\$1,023.30	80 for \$1,476.50	1,364	\$16,876.86	6,340 customers

5.4 Management/Administration:

- assisted in carrying out the Review of FLIS through NZAID – to determine the level of support from New Zealand Government. Report with recommendations received;
- finalised Maintenance Agreement on software with Intergraph NZ Ltd.;
- established Marketing Section – to market mapping & FLIS products and also Dept of Lands & Survey activities, services & products;
- established a GIS Section – to develop and manage a GIS for the Dept of Lands & Survey;
- continued to submit Quarterly Reports to PMs Office on Ministry's activities in Government Blueprint Programme;
- continued to submit Quarterly Reports to PMs Office on Ministry's activity in Government Social Justice Programme;
- organised Management Staff 'Retreat' at the Lagoon Resort in Deuba;
- participated in PSC Open Day with display booths, demonstrations, handouts, etc.
- compiled the Departments 2005 Budget submission to Min of Finance;
- prepared and submitted the FLIS 2005 Annual Budget;
- prepared the Department of Lands and Survey Annual Work Plan for 2004;
- prepared the Mapping & Land Information Division Annual Work Plan for 2004;
- prepared the FLISSC Annual Work Plan (final) for 2004
- compiled and implemented FLIS 2004 Training Programme;
- compiled & submitted the Mapping & Land Information Division Annual Report for 2003;
- compiled FLIS Support Centre Annual Report for 2003 and submitted to FLIC;
- continued to organise and report to FLIC meetings in 2004 – every two months;
- continued to attend and report to monthly GIS/RS Interest Group meetings;
- compiled and distributed the FLIS Quarterly Newsletter (through email where possible);
- compiled FLIS Fliers and distributed widely;
- continued to monitor Divisions especially FLIS 2004 Budget expenditure;
- continued to hold meetings: FLISSC (weekly), FijiTopo (fortnightly) and Section Heads meeting (monthly), FPSSD Examination Committee, Data Quality Committee, *VanuaInfo* Development Committee;
- prepared and submitted FLIS Quarterly Reports to Min of Finance & National Planning and also to Management – Quarterly Meetings;
- continued to make arrangements with PSC for advertising and filling of vacant positions;

6. Budget 2004

An indication of funding by the Fiji Government is as follows:

Sub-Division	2003 (F\$000)	2004 (F\$000)	2005 (F\$000)	Remarks
FLIS: Fiji Govt.	150	150	244	<i>No increase in budget.</i>
NZ Govt.	0	0	0	<i>Suspended after May 2000</i>

Photogrammetry & Mapping	52.347	52.347	52.347	
Technical	19.902	19.902	19.902	
TOTAL	222.249	222.249	316.249	

7. Training/Human Resources Development

Training will continue to be a core activity of the Mapping and Land Information Division considering the never-ending changes in Information Technologies. To maintain continuity and sustainability in the work environment, it is critical that we continue to invest in human resources development. Listed in the Table below are training programmes arranged and undertaken by Divisional staff in 2004.

7.1 Training Programmes in 2004:

No	Name	Course Attended	Duration	Venue
1	Paula Muayara	Hardware & Networking Specialist	3 months	India
2	Avinesh Kumar	Visual Basic & Advance	2 days	Pacsoft
3	Ms. Nanise Colamoto			
4	Avinesh Kumar	Security+	5 days	USP
5	Mosese Baravilala	PlantGro software	2 weeks	Dept of Agriculture
6	Inia Saula			
7	Mosese Baravilala	Comptia IT Project	5 days	Pacsoft
8	Avinesh Kumar	Computer Network Engineer	3 months	Japan
9	Mark Williams	Strategic Planning & Management	2 weeks	Singapore
10	Lorosio Raikivi	Image Rectification	5 days	SOPAC
11	Shivnay Naidu	ORACLE Database	5 weeks	ITC
12	Sitiveni Gauna			
13	Ms. Mereoni Buatoka	Technical Report Writing	6 days	ACIAR
14	Ms. Rashmi Rita	Master Degree in Environmental Management and Development	2 years	ANU, Canberra
15	Kemueli Masikerei	Map India and Annual International Conference	1 week	India
16	Thomas Fesau	Communication Techniques & Skills for Trainers	2 days	CTD
17	Pita Ravula			
18	David Prasad	Induction Course	3 days	CTD
19	Sitiveni Gauna			
20	Shivnay Naidu			
21	Nanise Colamoto			
22	Meizyanne Hicks			
23	Thomas Fesau	Disciplinary Procedures & Grievance Handling for Trainers	2 days	CTD
24	Ilaisa dredregasa			
25	Pita Ravula			
26	Thomas Fesau	Management/Administrative Ethics for Trainers	2 days	CTD
27	Ilaisa Dredregasa			
28	Pita Ravula			
29	Jitendra Kumar	In-house Automated Legal Diagrams	1 day	Lands Conf. Room
30	Rakesh			
31	Romila Lal			
32	Atelini Boletakanakadavu			
33	Baseba Leba			
34	Shivnay Naidu	Basic Management	3 days	Judiciary

35	Elenoa Tagivetaua			Training Rm.
36	Ilaisa Dredregasa	Training for Trainers Module II	2 days	CTD
37	Thomas Fesau			
38	Pita Ravula			
39	Elenoa Tagivetaua	Employee Relations	2 days	CTD
40	Tomasi Tulele			
41	Jone Cavu	In-Country Training on Articulation of training Needs & Systematic Training Cycle	2 weeks	CTD
42	Elenoa Tagivetaua	In-house Advanced MS Word & Excel	2 weeks	FLIS Conf Rm
43	Joeli Tagicakibau			
44	Josua Saidora	AusAid In-Country Skills Training in Conservation of Cultural Objects	2 weeks	CTD
45	Sophia Ali			
46	Elenoa Tagivetaua	Youth Invitation Programme	1 month	Japan
47	Ilaisa Dredregasa	Training for Trainers Module III	2 days	CTD
48	Thomas Fesau			
49	Pita Ravula			
50	Mereisi Loaladravu	Project Planning & Management	3 days	CTD
51	Saras Sharma	Effective Organisation	2 days	CTD
52	Charles Ryland	MapInfo Training	3 days	USP
53	Aisea Tuamoto			
54	Romila Jattan			
55	Sitiveni Gauna	ORACLE	2 days	ITC
56	Shivnay Naidu			
57	Viliame Savu	Advance Certificate MS Word & Excel	20 days	NZPTC, Ltk
58	Leba Gonewai			
59	Peniasi Balabala			
60	Atelini Boletakanakadavu	Customer Services	2 days	CTD
61	Munil Dutt			
62	Sera Gaunavinaka			
63	Shaleshni Kumar			
64	Josefa Uluibua	Communication Techniques & Skills	2 days	CTD
65	Sevanaia Taka			
66	Inoke Lalasava			
67	Ilaisa Dredregasa	Use of Information Technology in Public Administration	2 weeks	Singapore
68	Mereisi Loaladravu	MS Project Basic & Advance	3 days	PacSoft
69	Peniasi Balabala	GIS/Remote Sensing Conference	3 days	USP
70	Samuela Naicegucegu			
71	Elizabeth Cavuilati			
72	Joeli Tagicakibau			
73	Eric Rodney vilisoni			
74	Vikatoria Nakaora			
75	Mosese Baravilala			
76	Lorosio Raikivi			
77	Malakai Vakautawale			
78	Thomas Fesau			
79	Munil Dutt			
80	Atelini Boletakanakadavu			
81	Romila Jattan			
82	Elenoa Tagivetaua			
83	Pita Ravula			
84	Mark Williams			
85	Mereoni Buatoka			
86	Morgan Martin-Skerm			

87	Shivnay Naidu			
88	Sitiveni Gauna			
89	Sanjeev Kumar			
90	Inia Saula			
91	Akanisi Kini			
92	Samuela Naicegucegu	BA Land Management & Development – COMPLETED.	Part Time – 4 units – All Passed	USP
93	Meizyanne Hicks	Diploma in GIS	Part Time – 2 units – Both Passed.	USP
94	Malakai Vakautawale	Diploma GIS	Part Time – 3 units - All Passed.	USP
95	Lorosio Raikivi	Diploma GIS	Part Time – 1 unit - Passed.	USP
96	Akanisi Kini	Certificate GIS	Extension Class – 1 unit – Passed.	USP

In summary, the Division took part in 40 Training Programmes involving 96 staff, some of whom, attended more than one course during the year with a total man-days equivalent to more than 8 months. All effort would be made in future to provide relevant training to those not considered (in 2004) in any appropriate training opportunity in 2005.

Training Needs Analysis (TNA) and Performance Management Systems (PMS) Reports of all Divisional staff would highlight specific training needs for 2005.

7.2 Fiji Public Service Survey Drafting Examination:

The Division through the Examination Committee organized two (2) examinations every year, ei. May and November, for both Stages I and II of the Fiji Public Service Survey Drafting (FPSSD) Examination. This is an internal Departmental examination designed for new recruits at Technical Assistant level and technical officers from other Government and private agencies are encouraged to register and attempt this training opportunity.

Lectures are organized for all participants and also supplied with reference notes and in addition, assignments given on selected subjects.

In the May sitting, 12 candidates set for Stages I and II and 9 in the November sitting. The pass rates were 71% for Stage I and 100% for Stage II in May, and 50% for Stage I and 100% for Stage II in the November 2004 sittings.

The FPSSD Examination Committee is reviewing the syllabus to reflect the present working environment and it is anticipated that the new syllabus would be adopted in 2006.

8. Challenges/Barriers/Constraints

During the year, a number of challenges/constraints arose, many of which had been voiced in various forums and Reports that have directly or indirectly influenced the activities of the various sections within the Mapping and Land Information Division and included:

8.1 Need to Share/Exchange Data:

Land and Geographic Information of various categories including: Fiscal/legal (titles, cadastral, valuation, etc), Infrastructure (roads, sewerage, jetty, etc), Socio-economic (census, election, etc), Environmental (environmental, etc), Natural Resources (forest

cover, agricultural census, soil types, etc), Mineral (geoscience, etc), reside in various government Ministries/Departments and other organizations.

It has been realized that the exchange of or having access to such information is limited and in some cases restricted at all. This has been a continuous concern to the FLIS program.

8.1.1 Data Custodianship:

The principle of 'data custodianship' was adopted early in the development and is an underlying principle of the FLIS, but has not always been well grasped by the participating agencies.

The principle is very straight-forward and fundamental. All data collected by the Government becomes the "Government's Corporate Data Resource". Individual agencies involved in the collection and management of such land-related data are viewed as "Custodians/Trustees" of it on behalf of the Government and the wider community. Clearly then, custodianship is not *synonymous* with ownership. All data items are considered to be corporately owned by the government, but managed by the custodians according to a set of mutually agreed principles and procedures.

Data custodians inherit certain rights and responsibilities associated with data collected. They include rights to license and to charge fees for the data's use, and responsibilities regarding data maintenance and quality.

8.1.2 The Purpose of Custodianship:

Regardless of the various approaches taken to applying custodianship, the principles remain consistent. Data Custodians are responsible for the collection and maintenance of the data items for which they are nominated custodians on behalf of the government and the wider community. In return, custodians have certain rights with respect to that data.

To encourage an appropriate approach to land information management, it is desirable that custodians are aware of their rights and responsibilities and that these are conferred at an appropriate level of authority.

Data Custodianship supports fundamental FLIS objectives. For example:-

- a corporate approach to land information management maximises the benefit to the users.
- a custodian should be in a position to document the level of accuracy, timeliness, reliability, precision and completeness of data, to facilitate its use.

To ensure consistent responses to inquiries about land information, it is desirable that the same base information should be used by each agency. To guarantee land information integrity and consistency to the user, it is desirable that information on any data item only be released when it has been derived from its nominated custodian. Clearly, it is appropriate for there to be many outlets for individual data items, but to protect the rights of custodian agencies, outlets other than the custodian itself should preferably operate only under agreement with the custodian agency.

8.1.3 Responsibilities of Data Custodians:

Once an agency is designated as the data custodian for a category of land information, it takes on the obligation of ensuring that data quality standards are meant and that the data is efficiently managed and properly maintained.

To a great extent, the responsibilities of custodians will depend upon the approach taken in applying the principles of custodianship. However, there is general agreement upon some of the basic responsibilities that data custodianship implies. These are that the custodian should be responsible for principles and procedures for accuracy (integrity), currency (timeless), data storage (i.e definition and structure) and security of data items and collections.

In so doing, the custodian must consult with, and take into account the needs of users other than itself. Because the data is owned by the government, it is essential that the needs of all government users (in particular), be taken into consideration. The FLIC provides the best means of liaison between a custodian and the various users of its data.

Provision may need to be made for a custodian to delegate any or all of its functions for a data item another organisation, although it must still remain accountable for the integrity of the data item. Such delegation of functions may need to be supported by formal agreements, contract or legislation.

The custodian should ensure that any data item for which it is a custodian is available in an appropriate form for supply to authorised users, according to documented principles and procedures for accuracy, currency and definition.

To achieve reduction of unnecessary manual updating and to preserve consistency of data items, an individual data item should preferably be updated by a single nominated agency (the custodian) or its delegate. In some jurisdictions such changes in the item are transmitted by the custodian to other users storing or otherwise wishing to use that data item, either by way of a central LIS data distribution mechanism or directly by the individual custodians.

8.1.4 Rights of Data Custodians:

Custodianship of land related data implies a number of rights. The data for which custodianship has been conferred is considered part of the corporate data base. However, the custodian may be entitled to charge users for its data on the basis that it complies with the FLIC policy on **Charging for Land Information**, which is the framework for charging for land-related data in Fiji.

Custodians may also have rights to issue licenses to users and distributors of the data and to market such data. However, in the case of government agencies, data use is not licensed, but subject to the **FLIC Policy on the Sharing of Land Information between Government Agencies**.

8.1.5 Criteria for Selecting Custodian Agencies:

The following criteria should be used to select an organisation to be a custodian of an individual data item (in no particular order).

- the agency which is the first to record changes to the data item
- the agency which has sole statutory responsibility for the capture and maintenance of the data item
- the agency which has the greatest operational need for the data item
- the agency which is the most competent to capture and/or maintain the data item
- the agency which has the confidence of users that it will continue to meet its commitment to data collection and maintenance
- the agency which is the best economic position to collect data at its source

- the agency requiring the highest integrity of the data item

It is the responsibility of the **Fiji Land Information Council** to designate agencies as "**Data Custodians**". In making a designation, the Council will take the above into consideration and make sure that data concerned are described in an unambiguous manner.

8.2 Absence of an IT Strategy for Government:

With the absence of an IT Strategy for Government, it would be very likely that computerised systems (in-house and stand-alone) developed by various Departments are developed with their own standards in HW, SW and data. It would then be difficult to 'talk' to each other. This is in fact duplicating the problems face with existing manual systems.

I believe that the issue of standardization of HW, SW and data (capture and representation) would be considered strongly by ITC.

8.3 Need for Co-operation and Coordination between Government Departments:

There is a natural tendency for agencies to treat data as their own, often by limiting/restricting access. Early experiences revealed some fear that the computerised systems would threaten this control of the data.

This was a common issue in New Zealand Government and also in the Victorian Government in Australia. To avoid such problem, the Victorian Government has amalgamated a number of isolated or separated land related Departments namely: Lands and Surveys, Valuation, Titles, Forestry and Agriculture, to form a bigger Department called Natural Resources and Environment, thus allowing a much needed spirit of co-operation and teamwork.

Perhaps, this arrangement could be adopted in Fiji. Indeed we work for the same government.

8.4 Office Location:

The Department of Lands and Surveys operational offices, particularly in Suva are located in various locations and not under a roof. As such, it is impossible to access 'live' data or to make queries to databases. In addition, a lot of time and effort is unnecessary occupied in staff movement, file movement, etc.

The ideal situation is to house all of the Department of Lands and Surveys, and if possible MRD under one/same roof.

Furthermore, having all Divisions in the same building would allow us to improve systems updating by establishing a 'centralised updating section' for the whole Department.

8.5 Staff Skills and Retention:

This is no doubt an international issue and a major hurdle for Fiji. The training programme has ensured that staffs in the operational areas are becoming increasingly competent with the systems. Specialist IT staff have been employed but being in high demand locally and internationally, are often attracted to other employment. Against a government policy of reducing the size of the Public Service, we will have to maintain a core of good people if the successes realized is to be maintained. Similarly, management personnel must be exposed to the IT issues and computer technology to ensure that Fiji can continue its developments in stand-alone mode.

9. Staff Establishment: as at December 2004.

Sub-Division	ADMLI	PTO	STO	TO I	TO II	STA	TA	TOTAL
<i>Head Quarters</i>	1							1
<i>FLIS</i>		1	3	5	0	0	0	9
<i>Photogrammetry & Mapping</i>		1	2	6	10	3	2	24
<i>Technical</i>		1	3	7	20	9	4	46
TOTAL	1	3	10	18	30	12	6	80

10. Note of Appreciation:

It is encouraging to note the achievements made in 2004. These milestones would not have materialised without the continuous support and commitment of the following in terms of funding, manpower support, human resources development, etc:

- i. Fiji Land Information Council;
- ii. GIS/RS Interest Group and Urban Utility Groups;
- iii. CEO, Ministry of Lands & Mineral Resources and Management of the Department of Lands and Surveys; and
- iv. PSC, FAB, AUSAID, NZAID and JICA for providing sponsorships in training opportunities to local staff.

Vinaka vakalevu.

11. Conclusion:

Over the twelve months period of 2004, the Mapping and Land Information Division has focused on the development and production of its core businesses as described in the Department of Lands and Surveys Corporate Plan and also reflected in the Division's annual Plan for 2004. The work undertaken provided the Division with the opportunity to confirm, and adjust the alignment where necessary, of the links between the Government Outcomes for the department, the Departments of Lands and Survey Key Result Areas (KRA) and the Mapping and Land Information KRA and its goals and objectives.

Land Information System, Geographic Information System, Remote Sensing and Global Positioning Systems, are decision-support systems that must be looked at as one whole. For their effective implementation they require an **effective organisational structure and dedicated manpower** that operate and maintain the systems, **data** that sustains/feeds the systems, and the **technology** that drives them. These components are bound together by the processes and the transactions that are conducted and maintained within the systems. Justification for and benefits from the systems are found in the applications to which they are put by the users, the decisions made as a result, and the services to the agency or community served.

The Division will continue to improve its services to Government and its customers and will undertake to promote efficiencies and effectiveness in the work environment. In doing so, the Division has plans to review its policies and work procedures, re-organise and re-structure where necessary and continue to recruit skilled and experienced staff. In addition, the Division will strengthen its commitments to training of staff locally and abroad and pay more and more attention to the needs and aspirations of our clients and customers.

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Appendix 1

**Fiji Land Information System (FLIS) Operational Systems
(as at December 2004)**

No	System	Description	Database System	Location
1.	<i>Computerised Cadastral Mapping Systems (CCMS)</i>	The GIS database that holds the spatial representation of all cadastral boundaries.	Oracle	Dept. of Lands & Surveys
2.	<i>Titles Journal</i>	A system that captures the details and movement of documents through the Registrar's Office.	Advanced Revelation	Registrar of Titles
3.	<i>Titles Index</i>	Contains key information for all registered Certificates of Titles, Crown Leases, Native Leases, Crown Grants, Native Grants, and Sub-leases.	Advanced Revelation	Registrar of Titles
4.	<i>Survey Plan Journal</i>	Holds details of every parcel and every survey plan, and tracks those plans through the approval process.	Advanced Revelation	Dept. of Lands & Surveys
5.	<i>Survey Plan Index</i>	Contains key information for all approved survey plans.	Advanced Revelation	Dept. of Lands & Surveys
6.	<i>Valuation Records</i>	Holds all valuation assessments made by the Dept of Lands & Survey, as well as details of property sales.	Advanced Revelation	Dept. of Lands & Surveys
7.	<i>Road Index</i>	Textual details of all legal roads in Fiji	MSAccess	Dept. of Lands & Surveys
8.	<i>State Lease Administration</i>	Contains details of registered and un-registered State leases and related actions and file movements	Advanced Revelation	Dept. of Lands & Surveys
9.	<i>State Rental System</i>	Contains Rental details of all State Leases and Native Leases to State.	Oracle	Information Technology & Computers (ITC)
10.	<i>State Land Register</i>	An inventory of all State Land – State Land With Title and Without Title.	Advanced Revelation	Dept. of Lands & Surveys
11.	<i>Native Land Register (NLC Report)</i>	An inventory of all Native Land, and links to the associated land owning units.	Advanced Revelation	Native Lands & Fisheries Commission
12.	<i>Vola ni Kawa Bula</i>	A record of all indigenous Fijians referenced to the land owning unit – Tokatoka, Mataqali, etc.	Advanced Revelation	Native Lands & Fisheries Commission
13.	<i>Census Mapping</i>	Holds records of National Census Boundaries – 1976, 1986 and 1996.	Oracle	FLIS Support Centre
14.	<i>Fiji Topo Database</i>	A GIS of fully structured topographic data derived from 1:25,000 scale national mapping and aerial photos.	Oracle	Dept. of Lands & Survey
15.	<i>Native Land Mapping System</i>	A GIS database that contains spatial representation of all land recorded on the Native Land Commission (NLC) maps.	Oracle	Dept of Lands and Survey.

16.	<i>Geodetic Database</i>	Holds records of all survey controls in Fiji – first, second and third order.	Access 2000	Dept. of Lands and Survey
17.	<i>Government Rented Buildings</i>	An inventory of all buildings rented by State for office space and staff quarters.	Advanced Revelation	Dept. of Lands and Survey
18.	<i>Native Leases to State</i>	An inventory of all registered and un-registered Native Leases to State.	Advanced Revelation	Dept. of Lands and Survey
19.	<i>VanuaView Standard - Cadastral</i>	A viewing package based on Computerised Cadastral Mapping System (CCMS) data.	Oracle, Advanced Revelation and C++	Dept. of Lands and Survey
20.	<i>VanuaView Standard - Topographic</i>	A viewing package based on Fiji Topographic Mapping data.	Oracle, Advanced Revelation and C++	Dept. of Lands and Survey
21.	<i>VanuaView Standard – NLC</i>	A viewing package based on Native Land Commission Mapping data.	Oracle, Advanced Revelation and C++	Dept. of Lands and Survey
22.	<i>METADATA</i>	A detailed description of outputs (hardcopy/digital) and services available within FLIC member agencies including FLIS.	MSAccess	Dept. of Lands and Survey
23.	<i>Lands Account Cash Flow System</i>	A recording, monitoring and reporting system developed for Lands Accounts Section to record all cash flows taking place on day to day basis	MSAccess	Dept. of Lands and Survey
24.	<i>Survey Plan Imaging System</i>	All approved survey plans – 50,000 approx. will be converted to digital form by scanning. Digital copies are available for viewing and making copies in all Divisional Offices – Suva, Lautoka & Labasa.	VB, MapInfo & Proviewer	Dept. of Lands and Survey
25.	<i>Website – Dept of Lands & Survey</i>	A website developed and managed by FLIS for the Dept of Lands & Survey. Website address: www.lands.gov.fj		Dept. of Lands and Survey
26.	<i>Map Sales Recording System</i>	A monitoring, recording and reporting system for all map types published.	MSAccess	Dept. of Lands and Survey
27.	<i>Computer Hardware & Software Inventory System</i>	An inventory of all computer hardware and software purchased by the Department.	MSAccess	Dept. of Lands and Survey
28.	<i>Human Resources Management System</i>	A detail inventory of all training (local & overseas) programmes undertaken.	MSAccess	Dept. of Lands and Survey