

"Fore-Sight"



"Fore-Sight" - Quarterly Newsletter of the Association of Surveyors of P.N.G.

ASPNG Moving Forward on a Number of Fronts



The logo (left) is that of the Federation Internationale des Geometres (FIG) or the International Federation of Surveyors. ASPNG has rejoined FIG, and is taking an active part in a number of Commissions.

A "commission" in FIG terms is a specialist area of interest, and they have a number of commissions dedicated to particular aspects of the surveying profession and related technical fields.

As a first step in reactivating ASPNG's association with FIG, the following commissions have been undertaken :-

Commission 2 : Professional Education
Jones Taugaloidi PNG Representative

Commission 3 : Spatial Information Management
Alan Dunley PNG Representative

Commission 6 : Engineering Surveys
Michael Sirabis PNG Representative

Commission 7 : Cadastre & Land Management
Steve Low PNG Representative

Commission 8 : Spatial Planning & Development
Bob Curley PNG Representative

FASPNG Michael Larmer was instrumental in setting up the appointments and coordinating the submissions to FIG. It is hoped the PNG representatives to the various FIG Commissions will be able to report back to fellow ASPNG members with news on international developments with regard to the surveying profession.

FIG annual fees are based on an amount for each member of our Association, so in a way all members of the ASPNG have an interest in this renowned international surveying organization.

FIG are proposing a "Working Week" in Athens, Greece, May 22 - 27, 2004. The theme of the conference is *The Olympic Spirit in Surveying*. The organizing committee is considering supporting ten

young speakers from developing countries to attend the conference and give a short paper. ASPNG members might like to consider this - and take advantage of what would be a wonderful trip in an Olympic year.

On other fronts, ASPNG is near to finalizing the establishment of its web-site that was proposed some time ago. We look forward to this as a means of promoting our Association and as a means of being able to communicate with the world outside of PNG on a regular and professional basis.

Francis Posenau has been active since his re-election to Council, and has spent a considerable amount of time in preparing a comprehensive submission that will form part of ASPNG's contribution towards the draft Legislation on Voluntary Customary Land Registration. Council will be able to provide meaningful advice on this important subject.

Members of ASPNG can also look forward to participating in a Continuing Professional Development Program. Details will be available some time in the new year.

An encouraging sign on the increased interest being shown by members of ASPNG, is the recent formation of a Regional 'Surveyors & Cartographers Club' in East New Britain.

ASPNG was represented recently at two overseas surveying conventions - the inaugural conference of the Spatial Science Institute (Aust) in Canberra with the attendance of Bob Curley, and the Northern Group Conference in Townsville by ASPNG President Steve Low.

The 2004 Congress Committee has also been busy, and are pleased to announce the theme - *Planning, Surveying and Administration of Peri-Urban Customary Land in PNG for Economic Development*. This theme is sure to arouse a lot of interest and we're looking forward to a record number of technical papers and presentations. The 2004 PNG Survey Congress is scheduled for July, and will be held at the Lae International Hotel.

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December 2003



COMING EVENTS :

Dec 2 to Dec 5
2nd Regional FIG
Conference, Morocco.

Dec 24 / Dec 25
Santa Arrives PNG

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ASPNG Wishes All Members & Friends a Merry Xmas & Happy New Year - Please Drive Safely

My Life and Times in PNG

Courtesy of Garry Crosse, (ex PNG Surveyor)

PNG Experience Garry Crosse

The following is a brief description of my life and times in PNG.

March 1981 to March 1983 - Manager for Arman Larmer Surveys in their Lae branch office.

During that period I undertook many typical cadastral and engineering surveys. Of particular note are the following projects:

- a detailed engineering road survey of the Highlands Highway from Lae to Mumeng (36kms) - have you ever dodged vehicles on the Highlands Highway? quite an effort to stay alive - witches hats are an incitement to aim at the thing they are protecting.
- a detailed engineering road and bridge sites survey from Menyamia to Aseki (36kms) - dealing with the Kuku Kuku's is fun - I bought whatever they wanted to sell just so they wouldn't poke me with the spear or split my skull open 'olsem banana' with the sword stick.
- a 6 week stint at Ok Tedi setting out the Gold Pilot Processing Plant - fun in the mist and rain, rum and cards on Saturday night at the drillers camp and watching the young daughters of American engineers play softball on Sunday afternoon whilst the 7,000 sex starved men watched in awe of their tight wiggling bums and budding figures.

November 1984 to March 1987 - Manager of Bassett & Associates in Rabaul.

During that period I undertook many typical cadastral and engineering surveys as well as surveys for agricultural projects, including the 'warping' of aerial photography to create plantation development plans with vector overlays.

A tank deformation survey at the Mobil depot in Lae caused me some angst, though a bosun's chair and a brave chainie dangling from the top of the tank solved the problem.

March 1987 to September 1996 - Manager of Palanga Surveys and then Managing Director of CPS Palanga Surveys in Rabaul.

During that period I undertook typical cadastral and engineering surveys as well as a substantial number of surveys relating to the mining industry (Control surveys, detail surveys, topographic surveys, drill hole and geo-technical surveys and mining tenement surveys).

Of particular note are the following projects:

- Wild Dog gold prospect near Rabaul - rugged landscape and Bainings fire dancers.
- Ramu nickel project near Madang - I mostly remember the heat.
- Simberi gold project off the coast of New Ireland - very rugged landscape, beautiful rainforest, 3 wheel trikes and cold beer at night.
- Lihir gold project - 9 years on this project including control surveys, topographic mapping (over 1,000ha of 1.0m contour interval mapping by ground methods in thick jungle), mining tenements and leases for the whole project, mapping of land ownership and establishment of a MapInfo GIS database, as well as being the projects consulting surveyors - a rewarding and exciting project to be involved in - dangerous hot springs and corrosive mud (from the remnant volcano), weird geologists and site supervisors, lazy labour (unusual?), great scenery, dense and steamy jungle, rugged terrain and fried egg sandwiches for lunch after a morning carried in your field bag (yummy!)
- Post eruption surveys in East New Britain - topographic surveys, cadastral surveys and planning applications to locate and plan new residential and commercial developments in Kokopo and surrounds. This included the Takubar Project, a large mixed residential and commercial development (over 100ha) for the Archdiocese of Rabaul - I was involved from conception - I prepared the subdivision design layout and was Project Manager responsible for topographic, engineering and cadastral surveys, prepared the specifications, issued the contracts and supervised

the engineering design and construction work.

The 2 years post eruption period presented some of the toughest times of my life, let alone my surveying career - I was forced to build and live in a 'haus plastik', fight to find a telephone that worked, a bank that was open, a supplier that would give credit, food that wasn't prohibitively expensive and equipment that wasn't corroded or full of dust - I breathed dust for the whole time. My family was removed to Australia and a 'fly in- fly out' arrangement became necessary. Our company managed to survive, and indeed thrive, thanks to the Lihir Project and the staying power of our national staff.

The final straw to my PNG lifestyle came in September 1996 when I was diagnosed with Leukaemia whilst in Brisbane on a leave break - this was probably the luckiest break of my life - had I remained in PNG I would have been diagnosed with malaria, given quinine and died without anyone knowing the true cause of my malaise. My luck has held ever since, having survived chemotherapy, a bone marrow transplant, associated problems caused by the treatment and financial disaster. I've been working for Qasco Surveys in Brisbane for the past five and a half years doing quality assurance, marketing and quote preparation. Fieldwork is not in my vocabulary any more!

I miss PNG very much. It was a fantastic place to live and raise a family and I met the strangest and wildest bunch of characters you could ever hope to meet (surveyors are high on that list!). The survey congresses and the SP were a highlight. I hope the ASPNG keeps up its membership and continues to provide an essential focal point for all surveyors working (or who have worked) in PNG. Good luck.

Kind regards and best wishes,

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Report from ASPNG Council

By Masang Bangindo, Secretary / Treasurer ASPNG

This time brings to an end another difficult year for Papua New Guinea with the current economic trend, that has affected a lot of us who have tried to make ends meet.

Individuals and businesses have had to really struggle by digging deeper or even squeezing tighter in order to survive.

With this economic trend, the Association of Surveyors of Papua New Guinea is currently experiencing many challenges in terms of keeping its members, maintaining our professional identity, delivering services to its members, deregulation of the survey act, reform in the Department of Lands and Physical Planning, name changes in the office of the Surveyor General and encouraging our young professionals who will follow in our footsteps.

It is our obligation to secure a bright new future for our young graduates who will continue with the technological challenges, administrative changes and the expectation of performances of professional surveyors by our clients, peers, the public and the society as a whole.

Because of this, ASPNG is considering taking on some responsibility to facilitate the advancement of its member's professional abilities. Continuing professional development will be conducted, either through education and training or by attending CPD activities that will be run by the association for its members. These CPD activities can be in a form of a workshop on eg, Cadastral re-instatement, Engineering set out for road construction, or big construction site surveys, project planning and costing, computer aided drafting and so on. Mind you, do not get carried away with the technology, we still have to maintain the basic fundamentals of surveying.

In addition to this, the introduction of new and better technology into the market is creating strong professional competition and as surveyors we must therefore continue to meet the expectations of the society and maintain our professional ability and identity or we will be taken over by other professions.

ASPNG Council members have currently been busy putting together various agendas to go through the council meeting, which has been planned for early 2004.

This includes ASPNG's contribution towards the draft Legislation on Voluntary Registration of Customary Land Law by Francis Posenau and CPD policies and the CPD activities by me.

The Association maintained its collaborative relationship with the office of the Surveyor General, the Department of Lands and Physical Planning and aims to extend this relationship to the Department of Forestry, Agriculture and the Department of National Planning and Monitoring. It is my belief that we put some form of strategies in place, especially with the current draft Legislation on Voluntary Registration of Customary Land Law, we can tap into these various department resources by offering our services and expertise. Like Agriculture and Forestry, their resources cover large areas of customary land and as such needs our services to pave ways for them to carry out their activities.

The 237th ASPNG Council meeting was held at Holiday Inn on the 12th of July 2003, and it was suggested that council start and introduce Regional Group meetings. These Regional meetings will discuss and collect information relative to the Association and the surveying profession. So far, I am pleased to announce the formation of the "Surveyors and Cartographers Club" based in East New Britain Province. They have had a meeting and have put forward some suggestions for the council to consider. These members have taken their own initiative in the formation of the club and I would urge members in the other Regions to form similar Regional Groups.

ASPNG has renewed its membership with the International Federation of Surveyors (FIG) and have also maintained strong links with the Institution of Surveyors Australia, now the Spatial Science Institute (SSI). This was through, Council member Bob Curley's participation in the SSI inaugural conference in Canberra in September and President Steve Low's participation in the Spatial Science Institute Northern Group conference in Townsville in October.

The theme for our 2004 38th Survey Congress is "PLANNING, SURVEYING and ADMINISTRATION OF PERI-URBAN CUSTOMARY LAND IN Papua New Guinea FOR ECONOMIC DEVELOPMENT". Dates for the Congress will be

8th, 9th, & 10th of July 2004 and the venue will be at the Lae International Hotel. Congress fees will be advised later.

ASPNG's approximate Financial cash flow to the end of 2003 is;
Congress Account balance K 3,000.00
Operating Account balance K 8,000.00
Term Deposit A/c balance K 24,246.49

Previous Call Deposit Account of K9,246.49 was closed and a new term deposit account was opened with a new balance of K24,246.49 at an interest rate of 4.5%.

Membership renewal has been very slow this year. The association understands the current economic situation but still needs your support. From my report in the September "Fore-Sight" issue, eight applications for membership were received and are yet to be considered by council. A further eight new applicants have expressed interest in applying to become members. Four (4) applied in writing and the other four by verbal interest. Application forms together with the Code of Ethics and ASPNG Constitution & By-laws were mailed out to them.

The Association of Surveyors of Papua New Guinea is confronted with many challenges. It must seek to ensure that its members continue to meet the expectations of the society while maintaining the continuing development of their professional ability. We must be seen to be within the sphere of influence and take our responsible place in society rather than narrowing our field of view.

I would like to pen off with a quote by – MICHAEL KORDA- that reads like;
Success on any major scale requires you you accept responsibility . . . In the final analysis, the one quality that all successful people have is the ability to take on Responsibility.

I wish all Members & their Families a Merry Xmas & a Prosperous New Year

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PROMOTING GIS in PNG

Article by "The Cartographer"

Could GIS Apply to You ?



Government



Health Care



Education



Law & Order



Defence



Communications



Commerce



Industry



Real Estate



Insurance



Marketing & Promotion



Tourism & Travel



Forestry



Exploration / Mining



Oil & Gas



Agriculture



Transport & Shipping



Eng'g / Construction

The applications of GIS are only limited by imagination

They say "a picture is worth a thousand words" and with readily available and easy to use software programs, it's a simple task to prepare a professional presentation to get your message across.

The above 'slide' forms part of a 50 slide presentation that is aimed to increase awareness of what GIS is all about. Apart from the promotional aspect, the presentation is an educational tool that provides an insight into what GIS is, how it can be used, describes and gives examples of how information can be gathered to use in a GIS, and provides a practical application in the use of GIS.

So What is GIS ? GIS stands for Geographic Information System.

'Geographic means Where. Where = maps or co-ordinates - ie a position on the Earth's surface.

Information means What. What = the sort of information or data you want to deal with.

System means How. How = the method employed to achieve the "Where & What" - that is computers and appropriate software.

The strength of GIS lies in its breadth (the amount of topics or subjects it can cover) and its depth (the amount of detail or 'attributes' attached to each topic or subject).

What Does GIS Look Like ? It's a computer display that shows information in the form of a map, a spreadsheet, or a graph - or all three. It's a graphic representation with associated attributes.

What Can GIS Do ?

- Project Planning & Design
- Conduct Statistical Analyses
- Create Reports & Maps
- Make Accurate Projections
- Register & Control Assets
- Facilitate Management Decisions

Could GIS Apply to You ? Refer to the above slide - now you're getting the idea of how the presentation works.

Other aspects covered in the presentation include the use of reference manuals supplied with each standard dataset, relational databases that are available, and the sort of training that can be offered.

What are some of the methods for gathering data ?

- Aerial survey photography
- Multi spectral satellite imagery
- Panchromatic satellite photos
- Fieldwork by survey or handheld GPS
- Digital conversion of existing records
- Co-operating and working together

What are the benefits of using a GIS database ?

- Its easy to use (and has many applications)
- It allows for comprehensive information storage and retrieval
- Both graphic and tabulated data are available for statistical analysis
- It's a modern, efficient information management system
- You get increased workplace productivity and better job satisfaction
- It permits continuing professional development

Are there any problems ? Yes, the damn presentation is on a laptop that's packed it in and there's no back-up copy. Bugger !!!

Surveyors' Tales of the South Seas : A VISIT TO TONGA

Its not every day you receive the sort of invitation to visit a neighboring South Pacific country - and actually get paid to go on a fact finding mission. Naturally, the hand was raised fast to volunteer and the result was an informative and extremely pleasant experience.

The invitation was at the behest of GAF AG, a German based company with world wide consultancy experience in the spatial industry and in particular remote sensing applications. The fact-finding mission was in conjunction with the up-coming World Bank funded Cyclone Emergency Recovery & Management Project with particular emphasis on the B2 Component - Land Hazards and Information Management.

The Objectives and Scope of the B2 Component requires :-

- Review and upgrading of the existing national geodetic control network to a standard suitable for cadastral survey
- Providing advice and design for obtaining land imaging (aerial survey & / or satellite photos) and mapping / GIS over the whole of the Kingdom of Tonga
- Design and scope for the supply of geodetic survey equipment and information technology to support risk management activities
- Arranging and leading workshops, providing advice, mentoring, and where necessary giving hands-on support for applying land imagery and GIS systems to risk management and land information tasks within the Ministry of Lands, Surveys and Natural Resources
- Coordinating the application of regional scientific activities to risk management in Tonga (in association with SOPAC)
- Reviewing and advising on legislative reforms relating to survey and land information

The Kingdom of Tonga is located between latitudes 15° S and 23° S and longitudes 173° W and 177° W. This places Tonga just to the west of the International Dateline, south of Samoa and south-east of Fiji. Tonga consists of three main island groups - Tongatapu / 'Eau, Ha'apai and Vava'u. There are 170 islands in the Tonga Group of which 36 are uninhabited. The dry land area of Tonga is only 688 km² and the sea area covered by the group is 362,500 km². There are only 6 airstrips located throughout the Kingdom.

Traveling to Nuku'Alofa from Port Moresby takes you through Brisbane and Auckland. With the right connections you can get there on the same day - just remember to set your watch 3 hours ahead for local time.

The MLSNR Secretary and Surveyor General is Mr. Tevita Malolo. He is a surveyor of vast experience who is completely au fait with modern surveying techniques and the applications of remote sensing for thematic mapping purposes. His Senior Surveyor is Richard Kautoke and the Geodetic Surveyor is Francis Latu. In all, the Surveying Division has another 10 graduate surveyors, some of whom did their time at UniTech in Lae. One has a MSc in Geodesy from UCL, London.

A number of national geodetic surveys have been carried out previously in Tonga.

1957 - 1962 : Tonga Cadastral Grid
TCG control network based on astronomical observation determined independently at 4 island groups.

1969 - 1972 : Determination of Primary Control for Topographic Mapping over the Kingdom of Tonga.

The above two surveys each have their own astronomically determined reference point and have not been connected to each other.

1970 - 1971 : Shoran Trilateration
12 points were established using the XR Shoran System 4 - these were mainly for oil exploration purposes. Datum similar to previous TCG and DOS surveys.

1981 - 1984 : Aust Survey Corps
21 stations established using 5 x AN/PRR 14 Geoceivers on WGS-72 spheroid. Where appropriate, connections were made between the control station ground mark and mean sea level. These heights will be of assistance for geoidal undulation determinations relative to WGS-72 in Tonga.

In addition to the above, some project surveying has been carried out that has established further control points. These surveys include :-

1991 : Plate Tectonic Motion study

1995, 1997, 1998, 2002, and 2003 : Monitoring sea level rise relative to land

1998 : Aerodrome GPS Survey - WGS84

Continuous GPS Base Stations :

CGPS Base Stn (Tongatapu) for South Pacific Sea Level & Climate Monitoring Project Phase III - established 2002

CGPS Base Stn (Vava'u) for South West Pacific GPS Project (tectonic plate movement monitoring) - Est'd 1999

The first vertical control in Tonga was established by the ship *Egeria* in 1888 on which the Kingdom's Navigational Charts are based. Datum : Chart Datum.

The second vertical control was done by HMNZS *Lauchlan* in 1957 - 58 on which most of Tonga's vertical control is based. Again the datum was Chart Datum.

The most recent vertical control was established in 1990. This was based on one year tidal readings from a tide gauge located in Nuku'Alofa, Tongatapu Island. A series of bench marks were established around Tongatapu Island based on the derived MSL of 1990.

My sincere thanks go to Francis Latu for providing me with this comprehensive report on the status of the Tongan Geodetic Control Network and for providing me with a digital copy of the database they are developing in MapInfo.

I am extremely impressed with the surveyors in Tonga. Apart from routine surveying duties, they are the ones who have digitized the topographic maps, who are creating the DCDB's, and creating the digital LIS.

From my Tongan Phrase Book :
Good Morning =
Malo e lelei ki he pongipongi.
SP Brown = Ikale

Article by Alan Dunley, GEO-GRAPHICS Ltd

SURVEYORS' CPD QUIZ

The idiomatic phrase - "throw a plan at the man" - stems from what profession ?

- A. Architecture
- B. Aviation
- C. Engineering
- D. Surveying

Answer "C" was the correct answer to the last question.

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Members & Other News ...

In a phone conversation with **Bill Farry** (a mapping mate in Brisbane) the other day, I learnt about a recent **surveyors** get-together in Townsville. **ASPNG President Steve Low** was at the function and doing a fine job representing PNG. **Surveyor Ian Truscott** was also in attendance - and we all know that Ian likes a cold beer on a hot day. Apparently the first one went down 'without touching the sides'. Bill swears he saw the glass warp as the cold ale disappeared. Several ales in a very short period later Bill reckons that Ian should wear a sign when he goes out drinking, something like "Caution : Getting into a shout with this guy could be hazardous". Perhaps we should invite Bill to our Survey Congress.

Spotted at Cairns Airport boarding a PX flight, then later at Jacksons Arrivals getting a tourist visa a week or so ago, was **surveyor Jeff Sanderson**. And the reason for his visit (?) - "Just visiting relatives", said Jeff.

Same flight ex Cairns, **FASPNG Fred Pratt** was returning to PNG after a stint in Burma.

Bob Cocksedge a former mapping advisor with the Dept of Works sends greetings to those who might recall his time in PNG. Anybody wanting to get in touch can e-mail him at : bob@maps-everywhere.co.uk

Kevin McConnell ex Principal Surveyor Works is the Trimble GPS and MapInfo rep in Fiji as well as the Treasurer for the Association of Surveyors Fiji. Kevin's e-mail contact is : lukemine@connect.com.fj

While PNG is coming to grips with possible Customary Land Registration, its interesting to note that all land in Tonga is *Crown Land (with various usage and occupancy rights)*. Samoa on the other hand has a series of land administration systems including customary, government and private - *and there is a current proposal to reform these to the Torrens System.*

TOWARDS FUTURE CADASTRES : 2014 and Beyond

A 42 page paper entitled *The Future Cadastres - Cadastres Beyond 2014* was presented by Paul van der Molen, Chair / President of FIG Commission 7 at the 125th FIG Anniversary in Paris, April this year.

Surveys were conducted in Europe, Latin America, Africa, Asia and Australia with special cases (informal settlements) being considered to ascertain the status quo with existing cadastres. The results of the surveys are interesting ...

- 30 - 50 countries possess an appropriate cadastre
- 140 - 160 countries don't
- Cadastres are often restricted to statutory land tenure
- Cadastres often face difficulties in catering for other tenure arrangements
- Imposed land tenure arrangements often don't work
- Land tenure reforms are often risky

- Public administration doesn't always commensurate with people's understanding

Proposed initiatives in formulating standardized principles include :-

1. 'Cadastre 2014' will show the complete legal situation of (all) land. Private and public rights and restrictions on land will be fully documented.
2. The separation between maps and registers will be abolished.
3. There will be a change from maps to data models.
4. The 'paper and pencil cadastre' will be gone - '2014' will operate in a 100% digital environment.
5. It will be highly privatized - with the public and private sectors working closely together
6. 'Cadastre 2014' will be cost recovering.

Note : A complete copy of this interesting paper is available in PDF format - please contact Hon. Sec. Masang Bangindo for details.

Editorial Comment : Surveyors Can Build Bridges ...

The welcoming letter from the FIG Commission 3 Chairman, Gerhard Muggenhuber, contained much valuable information in regard to Spatial Information Management, and especially highlighted the need for **communication** as an essential point following the technological process.

He went on to say : "*Communication means also to build bridges to other professions, which seems to be more and more the crucial point for a successful development within a world of which processes become more and more integrated and inter-dependent*".

In PNG, we have considered the establishment of a *Technology House* where members of various professional associations would be able to exchange ideas and information. This envisaged consulting engineers, surveyors, cartographers, and land management specialists working together in a spirit of co-operation.

In Australia this has now been realized to a degree as the new Spa-

tial Sciences Institute, where a number of allied professional bodies have amalgamated to form a united group representing the many forms of surveying, mapping, remote sensing, GIS, information management and the like.

The approach of the ASPNG's current Council in creating various initiatives augurs well for the future of our Association. As the lead story states - ASPNG is moving forward on a number of fronts. This is welcome news and has already lead to increased participation by our surveying members. In time, and given continued enthusiasm, we should be able to increase our membership base and attract more of the latent information technology specialists and other spatial data management professionals. The re-invigorated Institute of Mapping Sciences & Spatial Information PNG already have membership numbers equal to or more than ASPNG.

Perhaps the role of "building bridges" shouldn't be left to engineers alone. Surveyors can build 'communication bridges' just as well. *Ed.*