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COUNTRY REPORTS

CURRENT STATUS OF SURVEYING, CHARTING AND MAPPING AT THE NATIONAL LEVEL

Submitted by Australia **

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** Prepared by Australia.

Current Status of Surveying, Charting and Mapping at the National Level

Commonwealth of Australia

Presented at the 17th United Nations Regional Cartographic Conference for Asia and the Pacific

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This report may be downloaded from
http://www.ga.gov.au/nmd/asdi/forums.htm

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Introduction

This report contains information about the spatial information industry in Australia. Spatial information encompasses mapping, charting, surveying and the broad range of location-based endeavours now very much a feature of contemporary Australian economic, social and environmental life.

The report has been prepared to inform participants at the 8th United Nations Regional Cartographic Conference for the Americas, held in New York USA, 27 June to 1 July 2005.

The report is structured as follows:

- activities of government coordination bodies;
- activities of government agencies;
- activities of business;
- activities of education and research institutions; and
- activities of professional associations.

Where possible internet references have been included in the report to allow the interested reader to seek out more detail on particular items.

There are many spatial information acronyms in use in Australia. Those that are used in this report are included in the glossary of terms.

The report has been compiled by Geoscience Australia from contributions by a number of organisations. The views expressed are those of the individual organisations. The report may be accessed at http://www.ga.gov.au/nmd/asdi/forums.htm.

Glossary

AHO	Australian Hydrographic Office
AHS	Australian Hydrographic Service
ANZLIC	The Spatial Information Council (previously known as the Australia New Zealand Land Information Council)
ASDI	Australian Spatial Data Infrastructure
ASIBA	Australian Spatial Information Business Association
ASIERA	Australian Spatial Information Education and Research Association
BOSSI	The Board of Surveying and Spatial Information of New South Wales
CRCSI	Cooperative Research Centre for Spatial Information
FIG	International Federation of Surveyors
GA	Geoscience Australia
ICSM	Intergovernmental Committee on Surveying and Mapping
OSDM	Office of Spatial Data Management.
PSMA	PSMA Australia Limited (Public Sector Mapping Agencies)
QSIC	Queensland Spatial Information Council
SSI	Spatial Sciences Institute
VSC	Victorian Spatial Council
WALIS	Western Australian Land Information System

Government coordination

National

ANZLIC the Spatial Information Council

Web address http://www.anzlic.org.au/

ANZLIC, the peak inter-governmental council for spatial information in Australia & New Zealand, is developing nationally-agreed policies and strategies aimed at achieving "best practice" in spatial data management. Within Australia, the major program for improving access to data is the ASDI.

ANZLIC advocates the use of common open interoperability standards, ensuring that data is more easily available to decision makers and increasing the range of spatial information products and services available to government, business and the community. Within government, ANZLIC is creating a strong linkage between policy decisions and the information needed to implement them.

ANZLIC Council comprises ten members representing the Australian Government, the New Zealand Government and each of the State and Territory governments of Australia. A key concept of the Council is that each member represents a formal spatial information coordinating structure for whole-of-government within their jurisdiction. ANZLIC works through the Council itself, the jurisdictional Coordination bodies, the Contact Officer network, several Standing Committees and Working Groups, as well it's national office.

The Institution of Surveyors Australia, SSI, ANZLIC and other organisations will host the 2010 FIG World Surveying Conference in Sydney Australia.

ICSM

Web address http://www.icsm.gov.au/

ICSM is made up of government representatives from all the Australian States, territories, the Commonwealth and New Zealand. The Committee is a Standing Committee of ANZLIC and its members are responsible for surveying and mapping functions in their jurisdictions.

ICSM's role is to provide leadership, coordination and standards for surveying, mapping & charting, and assembling & maintaining national framework data sets. In 2006 national framework data includes geodetic, topographic, cadastral, tides & sea level, roads and geographic names although these will broaden out as ICSM takes on responsibility for the Australian Spatial Data Infrastructure (ASDI).

Recent achievements include:

- increased commitment to the 'National Topographic Information Coordination Initiative' (NTICI) which is aimed at improving cooperation between Jurisdictions in areas of topographic data collection, management and access. Collaborative projects to date have centred on shared image procurement, joint mapping projects and workforce planning. In March 2006 a raft of joint ventures were being undertaken by Commonwealth, State, Territory and local government jurisdictions;
- the development of a nationally consistent system for electronic lodgement and transfer of cadastral information and titles – with the aim of simplify procedures and removing the need for paper copies of survey plans; and
- participation with ANZLIC and allied bodies in initiatives that will lead to improved discovery and accessibility of Information about rights, restrictions and obligations relating to land administration in Australia;
- increased publication on the web, including:
    - Place Names Teaching Package. This interactive package is particularly aimed at students in the late primary school / early high school age groups. Initial usage rate has been very impressive. http://www.icsm.gov.au/icsm/cgna/index.html;
    - Compendium of Tidal & Marine Terms used in a legal context when describing the tidal interface. While this not definitive it does highlight the range of terms used by agencies in Australia and allows users to map terms from one region to another: http://www.icsm.gov.au/icsm/publications/tidal_interface/compendium_full_may03.pdf;
    - The Australian Tides Manual. This is entirely up-dated from the 1984 edition and it can be viewed and used interactively – this is especially useful because of the large number of hyperlinks to other web sites and applications: http://www.icsm.gov.au/icsm/tides/SP9/index.htm;
    - maintaining core Surveying Manuals, including the Geocentric Datum of Australia Technical Manual (http://www.icsm.gov.au/icsm/gda/gdatm/index.html) and Standard & Practice for Survey Control (http://www.icsm.gov.au/icsm/publications/sp1/sp1v1-6.pdf).
- the creation of Roads Working Group that is focused on greater coordination in the capture, maintenance and access of roads information across Australia and New Zealand. The prime aim is to develop and promote a nationally consistent classification and attribution scheme for the representation of roads and associated infrastructure;
- protection of Australian geographic names as internet domain names in a new non-commercial internet space created for use by communities;
- a Web Feature Service version of the Gazetteer of Australia is scheduled to be trialled to the Committee of Geographic Names Australia in September. It incorporates as much as is practicable of the ISO19112 Standard; and
- the formation of an All-Hazards Symbology Working Group under the auspices of ANZLIC and Emergency Management Australia. The objective is to develop a nationally consistent set of symbology that can be used by emergency managers and responders for mapping, spatial data, signage and the like. The task will place some reliance on the work done internationally, especially FGDC.

Government-specific

Federal government

OSDM

Web address http://www.osdm.gov.au/

The mission of OSDM is to expedite the delivery of spatial data, information and knowledge for the economic, social and environmental benefit of Australia. Its role is to administer the Australian Government's Policy on Spatial Data Access and Pricing, which is designed to:

- maximise the Australian Government's benefits from the application of spatial data;
- facilitate community access to public sector spatial data; and
- support the growth of a private sector spatial information industry.

The strategies OSDM follows are:

- encourage Government agencies to make their spatial data available under the terms of the Policy;
- ensure all scheduled datasets have an identified custodian;
- assist custodians to maintain and provide access to datasets in a manner that delivers optimal benefit to users;
- expedite a whole-of-government approach to meeting Australian Government agencies' needs for spatial data and tools;
- support a whole-of-Australian-Government input to national spatial data coordination mechanisms;
- promote development of the spatial information industry; and
- provide Secretariat support for the interdepartmental committees that coordinate cross-portfolio implementation of the Policy, namely, the Spatial Data Policy Executive, and the Spatial Data Management Group.

State and Territory government

BOSSI

Web address http://www.bossi.nsw.gov.au/

BOSSI is constituted under the Surveying Act, 2002, to provide for the registration of land and mining surveyors (over 1000 in NSW), to regulate the making of surveys and to advise the Minister of Lands on spatial information, and has been in operation in one form or another since 1837.

BOSSI is charged with the development and promotion of spatial information initiatives within New South Wales.

"Spatial Information" is defined as *"any information that has a definable location in space and time which can be above, below or on the earth's surface.*

It includes, but is not limited to, information about natural resources and environment, climate, land ownership and rights, landuse, infrastructure and demography".

BOSSI is enabled under the Surveying Act 2002 to provide the following in relation to spatial information activities within NSW.

- the investigation of matters referred to it by the Minister for advice or report in relation to surveying or any other aspect of the spatial information industry; and;
- the investigation of, and the provision of advice to the Minister with respect to, the practice to be followed in the conduct of surveys or in the collection, collation and dissemination of any other kinds of spatial information.

In order to address these two functions, BOSSI engaged Corporate GIS Consultants to develop a Road Map and Framework for a NSW Spatial Information Strategy.

The Road Map and Framework report from Corporate GIS clearly indicates that NSW needs a strategy which provides a whole of industry approach to spatial information industry development across the public, private and academic sections.

BOSSI has adopted the report as stage 1 and is now embarking on the next stage of the development of a draft Spatial Information Strategy which will form the basis for wide scale stakeholder consultation.

The Road Map and Framework report is an important milestone in the maturity of the NSW Spatial Data Infrastructure.

QSIC

Web address http://www.qsic.qld.gov.au/

The Queensland Spatial Information Council (QSIC) was established to lead the efficient and effective development and maintenance of Queensland's spatial information infrastructure.

This infrastructure is valuable in supporting the state's economic and social development, and contributing to the Queensland Government's Smart State vision.

To achieve this, QSIC partners with all sectors of the Queensland spatial industry with representation from government, industry, academia and the professions.

VSC

Web address http://www.land.vic.gov.au/vsc

New arrangements are in place for coordinating spatial information in Victoria. The VSC represents the whole Victorian spatial industry through representation on the Council by members of the peak spatial industry bodies. Through representation provided by each State Government department, Victoria Police, and VicRoads, the Victorian Government Spatial Committee provides coordination for the State Government sector.

These bodies represent a coordinated and collaborative direction that is intended to reap widespread benefits for the industry. The primary task for these two bodies is the implementation of the Victorian Spatial Information Strategy 2004-2007. The key features to achieve this are a joint approach to the development of policies and procedures, the creation and implementation of workplans and priority projects, and the development of strong partnerships between Government, industry and the academic sectors.

The VSC has the specific role to drive and support the Victorian spatial industry through the initiation and development of spatial information policy, maintaining a focus on the development and use of spatial information, and the establishment of a mechanism for communication and cooperation across all spatial industry sectors. The Council has representation from local, Victorian and Australian Government, industry, academia, and the professional associations.

The Victorian Government Spatial Committee has the role of setting the strategic direction for spatial information policy and decision-making within Victorian Government agencies. This includes promoting a coordinated and consistent approach to the planning and allocation of resources for the development, management and use of spatial information, the development of a whole of Victorian government registry of spatial information, and the promotion of spatial information best practice. All Victorian Government departments are represented on this committee.

The coordinating arrangements provide strong links with other spatial industry peak bodies. Members on the VSC and VGSC provide direct connections at a National level to ANZLIC, ASIBA, ASIERA, SSI, Geoscience Australia, and PSMA Australia Limited.

Direct connections are held at a State level to the Municipal Association of Victoria, to the Office of the Chief Information Officer, and to the Government's ICT Policy Committee.

These linkages represent communication with the Australian Government, other state government departments, industry bodies, the professional association, academia, and high levels of the Victorian State Government.

The success of these two bodies will result in the building of partnerships within and beyond the Victorian spatial industry, a coordinated approach to spatial information policy development, the development and application of initiatives that highlight the value and importance of spatial information, and the creation of strategies for financing, maintaining and developing spatial information and resources.

WALIS

Web address http://www.walis.wa.gov.au

WALIS is responsible for facilitating across-government access and delivery of the geographic information held by WA Government agencies. It is a partnership of most State Government agencies and local government, working with business, industry and the general community to manage and promote geographic information.

The WALIS Office is the central hub, around which most activities are organised and from which most strategies, standards and policies for data management and access are developed. The Office also provides the core services of WALIS Atlas, Clearinghouse (a secure environment for WALIS member agencies to share data) and Interragator, a metadata directory service.

At present, key projects with which WALIS is involved include:

- ANZLIC Metadata Profile. The WALIS Office is currently project managing, on behalf of ANZLIC, the development of a new metadata profile for Australia and New Zealand to comply with the ISO 19115 Standard. The project is being jointly funded by a range of agencies, including from New Zealand. The outcome will be a new metadata tool that will be freely available to anyone wishing to use it. The profile will become mandatory for metadata stored on systems such as Interragator;
- State Land Information Capture Program (SLICP). The SLICP identifies and collates the capture programs for digital geographic data, aerial photography, satellite imagery and map production within Western Australian State Government agencies. A review of this program is currently being completed in order to make the process more efficient and allow greater capture. Opportunities for improving the submission process (from paper-based to on-line) are also being developed;
- Custodianship and Pricing and Access policies. WALIS has policies for both data custodianship and data pricing and access, both of which are dated and are currently being reviewed. The custodianship policy refers to fundamental datasets that are maintained by WALIS member agencies on behalf of the WA Government, and sets out the responsibilities of custodial agencies and those using the data. The pricing and access policy covers the difference between data used by WALIS member agencies for government business and data sold to users for commercial purposes; and
- WALIS "outreach" program. WALIS Office organises a range of events and activities during the year and also produces two editions of WALIS News and 12 editions of WALIS e-News each year. WALIS Forum, the premier spatial information event in Australia, is held every 18 months (the most recent event was held in February this year). Seminars and workshops are held regularly.

Government agencies

Federal government

Australian Hydrographic Service

Web address http://www.hydro.gov.au/

The Australian Hydrographic Service (AHS), through the Australian Hydrographic Office (AHO), has responsibility for production of nautical information and management of Australia's nautical charting service under the terms of the UN Safety of Life at Sea (SOLAS) Convention and the Australian Navigation Act. These responsibilities incorporate coordination and determination of policy and standards relating to hydrographic surveying and charting. In addition, the AHS is responsible for providing maritime Geospatial information including nautical charting, oceanographic and meteorological services to the Australian Defence Force. The AHS provides input into a number of national coordination bodies including the Intergovernmental Committee on Surveying and Mapping, Association of Australian Port and Marine Authorities, and the Permanent Committee on Tides and Mean Sea Level.

Survey effort. The survey of Australia's vast area of charting responsibility has continued. Surveys have been conducted in around the northern, north-eastern and southern coasts, Antarctic waters adjacent to Australian dependencies and Papua New Guinea. These surveys have been conducted utilising the PALUMA-Class Survey Motor Launches, LEEUWIN-Class Survey Ships and the Laser Airborne Depth Sounder Aircraft. The Navy Deployable Geospatial Support Team, based at the AHO in Wollongong, has also conducted military hydrographic surveys for various operations and in support of national nautical charting.

Electronic Navigation Chart (ENC). Australia's planned coverage of ENC from Weipa to Gladstone and some other major ports has been completed. In order to ensure that Australia is able to cater for increased ENC usage, Australia has embarked on an Accelerated Electronic Nautical Chart Program (AEP) and data collection program following the provision of increased government funding. Between 2006 to mid-2009, production work utilising in-house and contractor resources is expected to complete ENC coverage of the Australian and Papua New Guinea coastline and all major Australian ports. In conjunction with the AEP, An accelerated data collection program in the Torres Strait

will commence during the latter half of 2006 and continue until 2009. The collection will be conducted by means of airborne laser bathymetry, generally by means of contracted surveys.

Paper and Raster Nautical Charts (RNC). Australia has a portfolio of 400 paper charts covering the waters of Australia, Papua New Guinea and Antarctica. Seafarer RNC is its raster product that has approximately 2000 current users. The RNC will continue to supplement the ENC's to provide full electronic charting capability covering Australia's area of charting responsibility.

GA

Web address http://www.ga.gov.au/

Geoscience Australia is Australia's national agency for geoscience research and geospatial information. It is located within the Industry, Tourism and Resources portfolio.

Geospatial activities occur across the organisation, particularly in the geospatial and earth monitoring area. These include:

- monitoring earthquakes and nuclear explosions, making earthquake and landslide risk-assessments, studying risks faced by communities, and providing technical test-ban-treaty advice to a range of clients in government and the community;
- providing information on the Earth's magnetic field for navigation, mineral exploration, geological dating, dealing with hazards related to geomagnetic disturbances, and many other applications;
- mapping the outer limits of Australia's jurisdiction under the UN Convention on the Law of the Sea, studying the environmental impacts of hydrocarbons, researching estuarine health and participating in the international Ocean Drilling Program;
- identifying new prospective basins in Australia's offshore territory and promoting them as areas appropriate for exploration investment;
- producing national geoscientific maps, databases and information systems, conducting regional and mineral-systems studies, advising on Australia's mineral resources for land-use planning and management, and promoting opportunities for minerals exploration; and
- providing fundamental spatial information which relates to national mapping, maritime boundaries, remote sensing and geodesy.

State and Territory government

Web addresses are:

- Australian Capital Territory Planning and Land Authority http://www.actpla.act.gov.au;
- New South Wales Department of Lands http://www.lands.nsw.gov.au;
- Northern Territory Department of Infrastructure, Planning and Environment http://www.ipe.nt.gov.au;
- Queensland Department of Natural Resources and Mines http://www.nrm.qld.gov.au;
- South Australia Department of Administrative and Information Services http://www.landservices.sa.gov.au and Department of Environment and Heritage http://www.environment.sa.gov.au;
- Tasmania Department of Primary Industries, Water and Environment http://www.dpiwe.tas.gov.au;
- Victoria Department of Sustainability and Environment http://www.dse.vic.gov.au; and
- Western Australia Department of Land Information http://www.dli.wa.gov.au.

PSMA

Web address http://www.psma.com.au

PSMA Australia is an unlisted public company limited by shares and owned by the state, territory and Commonwealth governments of Australia.

As a government-owned company, we function as a 'Clearing House' within the ANZLIC model for the ASDI.

PSMA Australia does not aim to compete with the private sector; in fact the contrary is true. PSMA Australia has evolved to facilitate access to seamless national datasets derived from government data sources. It removes barriers and simplifies licensing of national datasets to Value Added Resellers, enabling and stimulating the spatial industry.

PSMA Australia is a world-leader in spatial technological advancements. In March 2004, PSMA Australia launched G-NAF the Geocoded National Address File. As Australia's only authoritative address index, G-NAF uses world-first methodology by linking textual and spatial data to verify the existence of each Australian address and identify its unique geocode.

PSMA Australia's latest development is LYNX – linking government resources with industry innovation. LYNX will revolutionise the collection, organisation, management and distribution of PSMA Australia's national spatial datasets by streamlining the datasets from separate entities into one integrated storage facility.

Business

ASIBA

Web address http://www.asiba.com.au/

ASIBA exists to create a business environment rich with opportunities for our members to create value for themselves and others through fostering a valued, robust and internationally competitive Australian Spatial Information Industry by:

- representing and promoting the interests of its members in political and industry arenas;
- promoting the scope, applications and value of the spatial sciences to other industries, government and the community;
- providing an avenue for cooperation between members and connectivity of the diverse disciplines which, together, constitute the Spatial Information Industry;
- taking an active part in public forums and contribution to public policy formulation;
- providing members with up-to-date market and policy intelligence;
- providing a forum for members to exchange views and resolve differences;
- being responsive to members' needs and concerns in relation to the state of the Spatial Information Industry or their part in it; and
- promoting modern and effective business management practices to its members.

The ASIBA vision is a united mainstream Spatial Information Industry leading the way in the Information Age.

CRCSI

Web address http://www.crcsi.com.au/

The CRCSI is a joint venture between government, business and academia. The participants and the federal government contribute $78 million in cash and in-kind resources to conduct and commercialise Spatial Information projects of mutual interest, bringing together the strengths of the relevant sectors. The shared vision is to make the CRCSI a world leader in spatial information applications that are affordable, useful and readily available to all – at any time and in any place.

CRCSI invests in activities that promote Australia's ability to progressively contribute to the creation of "Virtual Australia" consistent with the CRCSI's vision. Virtual Australia is defined as *a digital model containing and representing all non-trivial objects and their contextual environment – from blue sky to bedrock – in real world Australia.*

Members across Australia include over 40 companies; leading universities; and eminent relevant state and federal government departments.

The CRCSI Statement of Purpose is to create new wealth for the participants of the CRCSI, and for the nation, through research innovation and commercialisation; through educational activities; and through powerful collaboration that builds institutional capacity. Its activities:

- accelerate industry growth;
- generate intellectual property;

- seek efficiency gains for government; and
- better position the research and education programs of universities and other institutions.

Education and research

ASIERA

Web address http://www.asiera.org.au/

ASIERA provides a forum for all academics, teachers and researchers in the field of spatial information. ASIERA represents both the education and research sectors within the discipline of spatial information.

The mission of ASIERA as defined by its constitution is:

- to support all academics and researchers of spatial information studies, and other allied subject areas in Australasian tertiary and post-secondary institutions;
- to promote the academic and research interests, and welfare of the Australasian spatial information industry; and
- to provide a forum for discussion of academic and research matters, and to encourage close cooperation between the staff of the various institutions.

Professional associations

SSI

Web address http://www.spatialsciences.org.au/

The Spatial Sciences Institute is the peak national body catering for the professional people who make up the spatial information industry. SSI is international with a SSI New Zealand Region. There are a significant number of international members. SSI is recognised by ISPRS, FIG and other peak international bodies.

The vision of the SSI is to provide a globally recognised forum for the spatial sciences commu nity that leads, promotes, advocates and delivers excellence.

The Spatial Sciences Institute is a national body taking advantage of economies of scale, standardised administrative procedures across the nation, and centralised functions, where that is of advantage to members, but with service delivery maintained at the regional level to ensure the needs of members are understood and met.

There are no barriers to membership of the Institute. Specifically, members are not required to hold an academic qualification. However, training, qualification and experience will be recognised and rewarded through professional certification. Professional standards of conduct and practice are maintained through subscription to a Code of Ethics.

Modern communication technology is utilised to minimise the costs of administering the Institute, to allow members in all regions the opportunity of taking an active part in the administration of the Institute, and to enable national functions to be decentralised.

Now firmly established the SSI accommodates the changing nature of the industry while honouring and building upon the traditions, values and history of its founding institutions.

The SSI created a national Hydrography Commission in December 2005. The Commission provides professional guidance to hydrographic surveyors and related professionals within the Australasian region, and to the Australasian Hydrographic Surveyors Certification Panel (AHSCP). The Hydrographer of Australia is the Chair, Australasian Hydrographic Surveyors Certification Panel, which provides accreditation for hydrographic surveyors within the Australasian region.