



Australian Government
Geoscience Australia

Geoscience Australia Work Program

2010-11

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GEOSPATIAL & EARTH MONITORING DIVISION

GEMD overview

GEMD maps, monitors and models changes to the Earth and advises on how they affect Australian Society. GEMD works to improve the safety of communities and the protection of Australia's critical infrastructure.

GEMD combines its capabilities in geospatial information and knowledge management, research and mapping programs, earth observation capabilities and risk assessment, to bring together a comprehensive capability, able to respond flexibly to current and emerging government priorities.

Priorities for 10-11 are;

- Provide natural hazard risk information and advice to support Australian public and government interests including the National Disaster Resilience Strategy. Continue developing risk modelling tools to improve our capability, with a focus on developing a hydrodynamic model for flood/storm surge and landslide/dam-break modelling in collaboration with State governments.
- Support AusAID's disaster risk reduction initiatives in the Australasian region by providing scientific tools and expertise to assist in quantifying natural hazard risks in Indonesia, the Philippines and Papua New Guinea. This year's program will focus on quantifying earthquake and volcano risk in Indonesia; quantifying earthquake, tropical cyclone and flood risk in the Philippines; and developing a pilot risk assessment project in Papua New Guinea.
- In partnership with the Attorney-General's Department, continue developing the Critical Infrastructure Protection Modelling & Analysis (CIPMA) capability and apply it to tasks addressing interdependencies and failures for the Energy, Banking & Finance and Communications, Water and Transport sectors.
- In support of GA and external clients, develop physical, social and economic vulnerability models for the effects of severe wind, flooding, volcanic tephra, and earthquake, focussing on urban precincts and critical infrastructure assets. Expand the National Exposure Information System (NEXIS) to include a 3D visualisation tool for exposure and impacts, and detailed demographic data.
- Deliver a staged implementation for a common geospatial platform to deliver authoritative geographic information in support of the Australian Government's strategic priorities in the areas of defence, emergency management, social inclusion, environment, energy, and infrastructure.
- Deliver the agreed program of geospatial data capture and delivery to the Defence Imagery and Geospatial Organisation (DIGO).
- Progressive implementation of a single "multi-scale" database from which digital and hard copy products of scales from 100K through to 10M will be generated. This work includes schema design, population of the database and development of procedures to derive products.
- Through collaboration with all levels of government, complete revision of fundamental geographic information underpinning community safety, emergency management, climate change and economic development.

- Commence the development of a system to provide broad regional prospectively for solar power generation as part of the Department of Resources Energy and Tourism's Solar Flagships Program.
- In partnership with Bureau of Meteorology (BoM), provide support for the ongoing development of the Australian Hydrological Geospatial Fabric to meet national, state and regional water accounting and water resource assessment requirements of the Water Act (2007).
- In partnership with the Department of Climate Change and Energy Efficiency, the Cooperative Research Centre for Spatial Information (CRCSI), ANZLIC and State jurisdictions, operationalise the National Elevation Data Framework (NEDF) Portal and on-going governance, funding and coordination arrangements.
- In partnership with the Department of Climate Change and Energy Efficiency, install ground station capabilities to receive additional data from remote sensing satellites and implement systems for large-scale analysis of remote sensing images for international forest carbon monitoring;
- Deliver a national ground control point dataset at 2.5 metre resolution and reference images, allowing any remotely sensed image to be accurately and consistently geo-referenced, anywhere on the Australian continent.
- Acquire remote sensing data according to national priorities, by operation of ground stations and imagery supply panels.
- Operationalise a surface reflectance product utilising Landsat data
- Apply landcover data and methods to problems of national significance including studies of surface-ground water interactions and environmental compliance
- Operate and maintain national real time observatory networks to support community safety.
- Deliver the operational Geoscience component of the Australian Tsunami Warning System.
- Coordinate the deployment of State and Territory components of the Global Navigation Satellite System part of the AuScope National Collaborative Research Infrastructure Strategy program.
- Practical completion of the construction of the CTBT infrasound station on Cocos (Keeling) Islands.
- Deliver to the Department of Environment, Water, Heritage and the Arts a final report for the interpretation and assessment of aquifer characteristics to help better manage urban and environmental water requirements in the Broken Hill region.
- Deliver to DEWHA a review of existing knowledge and updated conceptualisation and knowledge gap assessment of the hydrogeology of the Great Artesian Basin
- Deliver to the National Water Commission a progress report on the development of a national framework for evaluating and managing palaeodrainage groundwater resources in Australia's arid and semi-arid zone.
- Provide technical advice to federal government on groundwater-related issues including to the impacts of mining on groundwater resources.

EARTH MONITORING GROUP

The Earth Monitoring Group monitors and reports on earthquakes, tsunamis and the Earth's magnetic field. It contributes to international efforts to monitor nuclear tests, and provides capacity building to allow the Rabaul Volcanological Observatory in Papua New Guinea to monitor and warn citizens of volcanic eruptions. The Group also monitors the shape of the Earth in the region, and contributes to the development of geospatial reference systems.

Work is conducted through eight (8) projects:

- Australian Tsunami Warning System (ATWS)
- Geomagnetism Project
- Geophysical Network Project
- National Geospatial Reference Systems Project
- Nuclear Monitoring Project
- Rabaul Volcanological Observatory Twinning Project
- Earthquake Hazard Project
- Support for the Earthquake Impact Assessments in Indonesia

It reports to government, industry and the Australian people on these activities.

AUSTRALIAN TSUNAMI WARNING SYSTEM PROJECT

- 1. Project Description:** The Australian Tsunami Warning System (ATWS) Project is an integral participant in the Australian, Indian Ocean and Pacific Ocean tsunami warning and mitigation systems (the ATWS, IOTWS and PTWS, respectively). The ATWS Project forms one half of the Joint Australian Tsunami Warning Centre (JATWC), which GA operates jointly with the Australian Bureau of Meteorology (Bureau); the ATWS Project provides the Bureau with information about earthquakes that have the potential to generate tsunami that may impact the Australian coastline and the Bureau issues warnings to the general public. The ATWS Project operates the Geoscience Australia component of the JATWC on a 24/7 basis. The ATWS Project also monitors, analyses and provides advice and alerts for local and significant international earthquakes to the Australian Government and the general public.
- 2. Project Outcomes:** Reduce the impact of tsunami to the Australian, Indian Ocean and South West Pacific communities through the operation of a comprehensive Australian tsunami warning system, supporting international efforts to establish an Indian Ocean tsunami warning system and facilitating tsunami warnings for the South West Pacific. The Australian community has the information to respond effectively to significant earthquakes that affect them.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia

- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Earthquake advice to the Australian Bureau of Meteorology.

6.1.1 Description: The ATWS Project provides the Bureau with advice on earthquake origin time, location and magnitude for all earthquakes that have the potential to generate a tsunami that may impact the Australian coastline. The ATWS continues to improve the information it provides through enhancing its system processes and greater understanding of the earthquake source.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

Alerts of earthquakes that have the potential to generate a tsunami that may impact the Australian coastline provided to the Bureau within 15 minutes of the origin time, 99.99% of the time.

6.1.5 Output Delivery Date:

- Q1** Advice provided to Bureau of
- Q2** Meteorology throughout the year
- Q3** as earthquake events happen
- Q4** in the region

6.2 Output 2: Earthquake advice to the Attorney-General's Department.

6.2.1 Description: The ATWS Project provides advice to the Attorney-General's Department for promulgation to other Australian Government agencies on earthquakes that occur in Australia and internationally, for use by the Australian Government and emergency workers in the protection of Australian citizens and interests in Australia and overseas.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Earthquake alerts provided to the Attorney-General's Department including earthquake origin time, location and magnitude for all earthquakes that have been felt or are magnitude 3.5 or more within Australia and magnitude 6 or more internationally.

6.2.5 Output Delivery Date:

- Q1** Information will be provided
- Q2** to AGD throughout the
- Q3** year as earthquakes
- Q4** occur.

6.3 Output 3: Contributions to international activities to coordinate warning systems.

6.3.1 Description: Contribute to the activities of the Intergovernmental Coordination Group for the Indian Ocean Tsunami Warning and Mitigation System and the Intergovernmental Coordination Group for the Pacific Tsunami Warning and Mitigation System and associated working groups. This includes our role as a Regional Tsunami Watch Provider (RTWP) for the Indian Ocean.

6.3.2 Output Type:
Business as Usual Project

6.3.4 Key Performance Indicators:

- Successful participation in international tsunami warning meetings and exercises organised by the IOTWS and the PTWS.
- Systems set up within the ATWS to test the viability of providing earthquake alerts to the Bureau for all earthquakes in the Indian Ocean that have the potential to generate a tsunami within the specified target of 6 minutes after the origin time of the event.

6.3.5 Output Delivery Date:

Q1

Q2 Participation in proposed tsunami exercises in the Indian and Pacific Oceans.

Q3 Contribution to Australian national report to the Intergovernmental Oceanographic Commission for the Pacific Tsunami Warning and Mitigation System meeting.

Q4 Report assessing the viability of providing earthquakes alerts for the Indian Ocean within 6 minutes.

GEOMAGNETISM PROJECT

- 1. Project Description:** The Geomagnetism Project addresses the national and international need for geomagnetic-field information from the Australian region. Typical uses of this information include navigation, geophysical exploration, space weather analysis, and solar-terrestrial physics research. The Project's primary outputs are the Australian Geomagnetic Reference Field model, data contributions to global models, time-series and magnetic-activity data, advice to researchers, magnetometer and compass calibrations, and geomagnetic research. During 2010/11 the Project will investigate whether global models are a suitable alternate source of main-field information in the Australian region and whether the AGRF remains an essential Project output.
- 2. Project Outcomes:** The main outcomes of the Project's activities are accurate regional and global geomagnetic field models, more-effective resource exploration, enhanced space weather forecasting and analysis, and advances in solid-Earth geoscience and solar-terrestrial physics research.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Geomagnetic data

6.1.1 Description: Calibrated time-series data are acquired from Geoscience Australia's geomagnetic observatory network in Australia and Antarctica. Indices of geomagnetic activity are derived from these time series. These primary and derived data are provided to international data centres and agencies, space weather analysts, the resource exploration sector, and research institutions. They are used in navigation, magnetic-field modelling, resource exploration and exploitation, space weather monitoring and geoscience research.

6.1.2 Output Type:

Business as Usual

Project

6.1.4 Key Performance Indicators:

- Time-series data are provided to users within 10 minutes of their acquisition by the observatory network and have 1-second temporal resolution and an accuracy of 5 nT and 0.2°.
- Definitive data for the Australian region and the Australian Antarctic Territory are provided annually to international data repositories and describe the strength of the main magnetic field in the Australian region to within 1 nT and its direction to within 0.1°.
- Geomagnetic-field activity measured at Australian observatories is analysed using K indices and reported weekly to international data repositories.

6.1.5 Output Delivery Date:

- | | | |
|----|-------------------------------------|-----------------------------------|
| Q1 | <input checked="" type="checkbox"/> | Data are delivered to |
| Q2 | <input checked="" type="checkbox"/> | Australian and international |
| Q3 | <input checked="" type="checkbox"/> | clients in a variety of formats |
| Q4 | <input checked="" type="checkbox"/> | and intervals throughout the year |

6.2 Output 2: Geomagnetic information and advice

6.2.1 Description: The Project provides information and advice to Australian and international government agencies, industries, researchers, and the public about geomagnetism in the Australian region.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Information and product requests are delivered within 3 days of request.

6.2.5 Output Delivery Date:

- | | | |
|----|-------------------------------------|--|
| Q1 | <input checked="" type="checkbox"/> | Advice is provided throughout the year in |
| Q2 | <input checked="" type="checkbox"/> | response to queries from other Government |
| Q3 | <input checked="" type="checkbox"/> | agencies, industry clients, research institutions, |
| Q4 | <input checked="" type="checkbox"/> | and overseas organisations. |

6.3 Output 3: Compass, magnetometer and swing-bay calibration reports

6.3.1 Description: Compasses, magnetometers and compass pads are calibrated for the aviation, maritime, and defence industries and research community.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

Compasses and magnetometers are calibrated for government and industry within 10 working days of receipt of the instrument.

6.3.5 Output Delivery Date:

- | | | |
|----|-------------------------------------|---|
| Q1 | <input checked="" type="checkbox"/> | Compasses and magnetometers are calibrated within |
| Q2 | <input checked="" type="checkbox"/> | 10 working days of their receipt from clients and |
| Q3 | <input checked="" type="checkbox"/> | compass pad calibrations are completed within one |
| Q4 | <input checked="" type="checkbox"/> | month of receiving a request |

6.4 Output 4: Reports on geomagnetic research

6.4.1 Description: The Project conducts research that addresses matters of national interest related to geomagnetism, geo-electrical conductivity structure, and geo-electromagnetic induction. Results are presented at national and international conferences and in publications.

6.4.2 Output Type:
Business as Usual Project

6.4.4 Key Performance Indicators:
Acceptance of peer-reviewed papers and delivery of presentations at Australian and international conferences

6.4.5 Output Delivery Date:

Q1	<input checked="" type="checkbox"/>	Paper presented at IAGA scientific assembly
Q2	<input type="checkbox"/>	
Q3	<input checked="" type="checkbox"/>	Australian Geomagnetism Report published
Q4	<input type="checkbox"/>	

GEOPHYSICAL NETWORK

1. **Project Description:** This project maintains and operates Australia's National Geophysical Network across Australia, the Antarctic region and in the Pacific and Indian Oceans. The project provides real time seismic, infrasound, hydroacoustic and geomagnetic data which underpins the monitoring of both natural and anthropogenic events that might constitute hazards to the Australian people.
2. **Project Outcome:** Effective national and international capabilities in Earth monitoring as an input to risk assessment provided through other Geoscience Australia and regional collaborative projects for the Australian continent, the South East Asian and South West Pacific regions.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Seismic, geomagnetic, infrasound, hydroacoustic data and ancillary information.**
 - 6.1.1 **Description:** The Geophysical Network project is responsible for the delivery of quality assured continuous near real-time time-series waveform data to support several projects in the agency and for making them available to international data centres for monitoring earthquakes, to tsunami warning centres overseas and to the CTBTO.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
Delivery of quality assured geophysical datasets that meet the requirements of the client groups including real-time tsunami, earthquake and nuclear monitoring.

6.1.5 Output Delivery Date:

- Q1** Continuous
- Q2** ongoing data
- Q3** delivery in
- Q4** near-real-time 24/7

NATIONAL GEOSPATIAL REFERENCE SYSTEMS PROJECT

- 1. Project Description:** This project aims to deliver the world's best Geospatial Reference Systems for Australia. A National Geospatial Reference System (NGRS) provides the fundamental, national-scale, reference frame that establishes the spatial relationships on and outside of the Earth's surface and allows spatial information to be interrelated in the same frame. Development of the NGRS includes refinement of and connection to the International Terrestrial Reference Frame, and crustal deformation measurements on the Australian Landmass. Accordingly we will coordinate the construction of the AuScope Global Navigation Satellite System network and provide expertise and advice about site selection, construction techniques and standards, and instrument installation.
- 2. Project Outcome:** An accurate and consistent National Geospatial Reference Systems support a wide range of planning and developmental activities, including cadastral and engineering surveys, topographic mapping, mineral and petroleum exploration, hazard monitoring, and navigation.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Data sets and value added products**
 - 6.1.1 Description:** Quality assured geodetic data sets and value added products including data from the Australian Regional GPS Network (ARGN), the South Pacific Regional GNSS Network, Satellite Laser Ranging (SLR) stations, Very Long Baseline Interferometry (VLBI) data from the Australian VLBI array and geodetic gravity data from the AuScope program. This output also includes Precision spatial measurements including Local Tie surveys and neo-tectonic deformation GNSS campaigns. These surveys are undertaken routinely and the results are delivered to the international community for use in reference frame combinations. Technical reports are also produced and made available through the GA library and web page.
 - 6.1.2 Output Type:**
Business as Usual Project:

6.1.4 Key Performance Indicators:

- The GNSS network must perform with sufficient reliability to support continuous, high-precision, national positioning applications, including for example AUSPOS. Assessment criteria: 90% of the network stations must be operational at all times;
- The GNSS data capture and dissemination system(s) is continuously operational with network data available to the geodetic community in near real-time, i.e. 15 minutes after observation, or better. Assessment criteria: total system outage time must be less than 5%;
- Synoptic GNSS observations at the eight original Australian Fiducial Network (AFN) sites are maintained such that the ongoing relationship between the national datum and the international reference frames can be routinely determined; (assessed by the % number of sites – 75 % minimum)

6.1.5 Output Delivery Date:

- Q1** The GNSS data are delivered to the international data centres
Q2 via GA's FTP site primarily daily, although hourly, fifteen
Q3 minute and real-time products are also produced. The SLR
Q4 data are delivered daily to international data centres directly from the two observatories. The gravity data will be available from GA's web site.

6.2 Output 2: Analysis results distributed

6.2.1 Description: Integrated, versatile and quality assured regional and global reference systems including routine contributions to the International GNSS service (IGS), the International Laser Ranging Service (ILRS), and the International VLBI Service (IVS) for inclusion into the International terrestrial Reference Frame (ITRF) definition. This output includes coordination of the annual GPS campaign of the UNESCO Permanent Committee on GIS infrastructure in the Asia Pacific (PCGIAP) Working Group 1 on regional reference frames, and the subsequent analysis of the GNSS data and submission to the ITRF through the Asia Pacific Reference Frame (APREF) project. It also includes analysis of Absolute gravity, and Interferometric Synthetic Aperture Radar INSAR data for crustal deformation measurements.

6.2.2 Output Type:

Business as Usual Project:

6.2.4 Key Performance Indicators:

- All GNSS time series must be as long as possible (preferably more than 4.5 years) and be near-continuous (i.e. no outages longer than 60 days) such that offsets in the coordinate time series, caused for example by non-geophysical phenomena, can be inferred and removed from crustal deformation estimates; (% number of sites with single outages more than 60days each)
- The analysis of data must fit world's best practice standards and be delivered in a timely fashion. Refer to IERS Conventions (2003) – IERS Technical Note 32 – International Earth Rotation and Reference Frame Service, BKG, Frankfurt, 2004

6.2.5 Output Delivery Date:

- Q1** SINEX files delivered weekly
Q2 SINEX files delivered weekly
Q3 SINEX files delivered weekly
Q4 SINEX files delivered weekly, PCGIAP solution included in IERS – ITRF densification activity

6.3 Output 3: Scientific Reports and Publications, including Journal papers and presentations at conferences.

6.3.1 Description: A variety of research outputs are reported to the community via reports and publications. These vary from presentations to industry forums to papers in leading peer reviewed journals.

6.3.2 Output Type:
Business as Usual Project:

6.3.4 Key Performance Indicators:
Acceptance of peer-reviewed papers and delivery of presentations to Australian and international stakeholders as appropriate.

6.3.5 Output Delivery Date:
Q1
Q2
Q3
Q4 EGU 2011, IUGG 2011

6.4 Output 4: Expert advice including the AUSPOS positioning service and astronomical enquiries.

6.4.1 Description: Responsive, accessible, accurate and reliable expert analysis and advice services including legal traceability of position from GPS and delivery of the AUSPOS service. Delivery of advice on AUSPOS is continuous. Other advice is ad hoc but generally involves tens of enquiries per week.

This output includes the delivery of advice on the maintenance of the NGRS including the relationship of GDA94 to ITRF and other datum's (including transformation parameters)

6.4.2 Output Type:
Business as Usual: Project:

6.4.4 Key Performance Indicators:
90% of national geodetic information requests responded to within two working days
Number of AusPos solutions completed each month

6.4.5 Output Delivery Date:
Q1 AusPos online service accessed by customers daily
Q2 AusPos online service accessed by customers daily
Q3 Auspos online service accessed by customers daily
Q4 AusPos online service accessed by customers daily

6.5 Output 5: Progress reports to AUSCOPE.

6.5.1 Description: Management of the Geospatial component of the AUSCOPE initiative funded under National Collaborative Research Infrastructure initiative (NCRIS). AuScope is an initiative aimed at improving the understanding of the Structure and Evolution of the Australian continent through investment in research infrastructure.

It will also involve the collation of progress reports and financial reports from participating agencies. Quarterly reports to AUSCOPE will be produced.

6.5.2 Output Type:

Business as Usual: Project:

6.5.4 Key Performance Indicators:

Timely Submission of annual business plans and annual reports to AuScope Ltd.

6.5.5 Output Delivery Date:

Q1 Report to AUSCOPE

Q2 Report to AUSCOPE

Q3 Report to AUSCOPE

Q4 Report to AUSCOPE

NUCLEAR MONITORING PROJECT

1. **Project Description:** The Nuclear Monitoring Project (NMP) monitors for nuclear explosions worldwide and provides technical advice and support to Government in matters pertaining to Australia's obligations as a signatory of the Comprehensive Nuclear-Test-Ban Treaty 1996 (CTBT), enacted under Australian law in the CTBT Act 1998.
2. **Project Outcomes:** Australia has effective national technical means to monitor and assess nuclear explosions worldwide; Australia's commitment to the establishment of the global verification system to monitor future compliance to the CTBT is maintained; and Australia's obligations under the CTBT to establish and maintain International Monitoring System (IMS) in Australia are met
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Technical Advice and Research Reports.

6.1.1 Description:

- Provision of seismo-acoustic monitoring information, advice and reports to Government on any suspected nuclear explosion or ambiguous event;
- Provision of technical advice and support to Government on the establishment of the CTBT verification system; and
- Identification, introduction and development of methods and applications, through research, that improve Australia's capability to discriminate nuclear explosions from other seismo-acoustic detections.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

Notification to DFAT/ASNO within 18 hours of any suspected nuclear explosion;
Acceptance of peer-reviewed papers and delivery of presentations to Australian and international stakeholders at appropriate fora (per national and data security requirements);

Stakeholder satisfaction demonstrated through continued funding and invitations to provide technical advice and support at Working Group B and relevant CTBT meetings

6.1.5 Output Delivery Date:

- Q1 Time frame determined by issues arising
- Q2 within DFAT, in the international arena,
- Q3 and including if and when other nations
- Q4 conduct nuclear tests

6.2 Output 2: Maintenance of an effective and reliable seismo-acoustic monitoring capability.

6.2.1 Description:

- Installation of Australian CTBT monitoring stations as Australia's contribution to the establishment of a global verification system for monitoring nuclear explosions. Activities in 2010/11 will revolve around planning, permissioning and construction of the infrasound stations at Cocos (Keeling) Islands and near Davis Station, Antarctica;
- Negotiation and management of contracts for the post-certification activities of Australian CTBT monitoring stations. Daily activities and routine reporting relating to this output are sub-contracted to Geophysical Networks Project on a Fee for Service basis.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

- Construction of Cocos (Keeling) Infrasound station within budget (\$3.7m) to the satisfaction of the CTBTO;
- Delivery of data to the International Data Centre in Vienna (IDC) at, or above, the standard required by the CTBTO.
- Renewal of existing CTBTO contracts and the establishment of new post-certification activity contracts for Australian CTBT stations.

6.2.5 Output Delivery Date:

- Q1
- Q2 Renewal of post-certification activity contracts
- Q3
- Q4 construction of Cocos infrasound station

RABAU VOLCANOLOGICAL OBSERVATORY TWINNING PROGRAM

1. Project Description: The Rabaul Volcanological Observatory Project provides capacity building to develop the Rabaul Volcanological Observatory in Papua New Guinea to monitor and warn citizens of volcanic eruptions. This phase of the project is a follow on from the Papua New Guinea – Australia Volcanological Service Support Project that was initiated following the 1994 eruption of Rabaul volcanoes.

The Project is funded by the Australian Agency for International Development (AusAID) and contributes to the Australian Government’s foreign policy objectives in the region.

2. Project Outcome: Reduce the impact of volcanic hazards on Papua New Guinean communities through the development of effective indigenous volcano monitoring capabilities.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Reports documenting improved capacity of RVO to monitor and mitigate volcanic hazards.

6.1.1 Description: Reports to AusAID on the level of capacity improvement and engagement within the project, including evidence of on-going engagement by RVO with National Disaster Centre, NGO’s, Provincial Disaster Committees and local communities.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

- Acceptance of May report
- Acceptance of Workplan document
- Completion of Project Coordination Committee meetings and acceptance of minutes
- Completion of Technical Advisory Committee meetings and acceptance of Minutes
- Acceptance of Completion Report

6.1.5 Output Delivery Date:

Q1 Report to AusAID on the outcomes of the previous phase of the project ending June 2010.

Q2

Q3 Verbal evidence provided to AusAID at the mid-year Project Coordination Committee (PCC) forum.

Q3 Written evidence provided to AusAID in the mid-year Project Managers progress report.

Q4 Written evidence provided to AusAID in May progress report.

Q4 Verbal evidence provided to AusAID at June Project Coordination Committee (PCC) forum.

EARTHQUAKE HAZARD PROJECT

1. **Project Description:** The Project aims to provide all levels of government and the public with accurate and timely information on the level of hazard expected from earthquakes in Australia. One of the main outputs is the National Earthquake Hazard map which is a key element of the Australian Standard, AS 1170.4 “Structural design actions Part 4: Earthquake actions in Australia”.
2. **Project Outcome:** Stakeholders across government and the private sector are able to make informed decisions on how to manage the potential hazard from earthquakes in Australia.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Aust exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: National Earthquake Hazard Assessments.

6.1.1 Description: To provide all levels of the Australian government, industry and public with information on the hazard associated with earthquakes in Australia. This year’s work program is focused on producing a draft version of the National Earthquake Hazard Map for AS1170.4. Once completed, this map will then go out for external review in order for it to be ready by 2012 for inclusion in an updated version of the Standard.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators::

- Completion of the draft National Earthquake Hazard Map;
- Acceptance of peer-reviewed papers on Australian earthquake hazard in relevant journals (eg Bulletin of Seismological Society America, Natural Hazards etc);
- Delivery of presentations on earthquake hazard at international and national seismological conferences (eg Seismological Society of America conference, the Australian Earthquake Engineering Society Conference etc);
- Successful internal review and publication of GA Records and Professional Opinions;

- Information and advice on earthquake hazard is provided to the general public and clients as needed.

6.1.5 Output Delivery Date:

Q1

Q2 Updated version of the seismic source zone model for Australia.
Updated national earthquake catalogue completed.

Q3

Q4 Draft National Earthquake Hazard Map completed

SUPPORT FOR EARTHQUAKE IMPACT ASSESSMENTS IN INDONESIA

- 1. Project Description:** The goal of this activity is to enhance the capacity of Indonesia's Agency for Meteorology, Climatology and Geophysics (BMKG) to provide rapid and reliable earthquake information to key stakeholders. Steps to achieve this include capacity development that will allow BMKG to operate, maintain and manage the Indonesian strong ground motion network and produce of near real-time earthquake impact maps so that BMKG can provide rapid and reliable earthquake information to key stakeholders.
- 2. Project Outcomes**
 - Strengthened relationship between Geoscience Australia and BMKG;
 - BMKG has an enhanced capacity to install, manage and maintain their strong motion network;
 - BMKG has a clear understanding of how to improve and maintain systems associated with the management of strong motion data;
 - BMKG is able to produce first-order near real-time earthquake impact maps; and
 - BMKG and AusAID understand the requirements for future network support and provision of rapid earthquake impact information.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: BMKG has an enhanced capacity to install, manage and maintain their strong motion network**
 - 6.1.1 Description:** GA staff to provide guidance on establishing a set of standard operating procedures (SOPs) for strong motion site installation and another for site operation and maintenance.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators:**
Report on SOP's delivered and is to the satisfaction of the stakeholders, BMKG.

6.1.5 Output Delivery Date:

Q1

Q2

Q3

Q4 Reports on SOPs for site installation and maintenance are produced

6.2 Output 2: BMKG has a clear understanding of how to improve and maintain systems associated with the management of associated strong motion data.

6.2.1 Description: Development of a station database to manage station meta-data, history, calibrations and assets for the ~500 systems in the network.

6.2.2 Output Type:

Business as Usual

Project

6.2.4 Key Performance Indicators:

BMKG is using the database to keep track of changes in their network.

6.2.5 Output Delivery Date:

Q1

Q2

Q3 A report detailing Australian Government understanding of BMKG data holdings and systems to allow work on consolidation of these data

Q4

6.3 Output 3: BMKG is able to produce first-order near real-time earthquake impact maps

6.3.1 Description: BMKG are run able to run a beta version of automated near real-time USGS ShakeMaps following detection and review of earthquake hypocentres from the Indonesian Tsunami Early Warning System for internal dissemination and review

6.3.2 Output Type:

Business as Usual

Project

6.3.4 Key Performance Indicators:

- BMKG is able to produce ShakeMaps automatically from InaTEWS's triggers and archive them on internal servers.
- BMKG is able to deliver estimates of the number of people exposed to earthquake shaking
- BMKG is able to deliver names of main cities/municipalities affected

6.3.5 Output Delivery Date:

Q1

Q2

Q3

Q4 BMKG is able to produce preliminary earthquake shaking maps in near real-time.

6.4 Output 4: BMKG and AusAID understand the requirements for future network support and provision of rapid earthquake impact information

6.4.1 Description: GA staff to develop a longer term work program in collaboration with BMKG for provision of support to BMKG beyond the 2010-2011 financial year.

6.4.2 Output Type:
Business as Usual Project

6.4.4 Key Performance Indicators:
A longer term work program is supported and funded by AusAID.

6.4.5 Output Delivery Date:
Q1
Q2
Q3
Q4 A work plan and recommendations developed for AusAID

RISK & IMPACT ANALYSIS GROUP

The Risk & Impact Analysis Group's (RIAG) key role is to develop knowledge of the risk from natural and human-caused hazards for input to policy and operational decision makers who use it for the mitigation of risk to communities in Australia and the Australasian region. RIAG achieves this through the development of computational methods, models and decision support tools for use in assessing the impact and risk posed by hazards. RIAG contributes to the National Research Priority of Safeguarding Australia by providing an improved understanding of the vulnerability of the built environment in Australia, including critical infrastructure. RIAG is also addressing the National Research Priority for an Environmentally Sustainable Australia through new work in the assessment of coastal vulnerability to climate change. RIAG does this work in collaboration with all levels of government. External funding support is derived from three main sources: Attorney General's Department (AGD) for GA's lead technical role in the Critical Infrastructure Program for Modelling & Analysis; the Australian Agency for International Development (AusAID) for natural hazard risk assessment capacity building in the Australasian region; and (3) the Department of Climate Change & Energy Efficiency for advice on climate change adaptation.

RIAG comprises four (4) projects:

- Climate Change Project
- Natural Hazard Impacts Project
- Engineering, Economics and Exposure Project
- Critical Infrastructure Project

CLIMATE CHANGE PROJECT (CCP)

1. Project Description: This project aims to define the impact (physical damage and economic costs) and long-term risk from extreme climatic phenomena (e.g. severe winds, sea level rise, storm surge, flooding and bushfire) on infrastructure, community assets and the environment. Current and future climate impacts and risks are considered. The primary focus for the CCP is on Australia, although climate change impact/risk in neighbouring regions (SE Asia, South Pacific) is also considered.

2. Project Outcome: Stakeholders across government and the private sector are able to make informed decisions (planning and policy) to manage the risk from some climatic hazards and evaluate the cost/benefit of climate change adaptation policy.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Wind Hazard and Risk

6.1.1 Description:

Provide all levels of government and the public with information on the hazards and risks associated with severe wind in the Australian region. This research will inform revision of Standards Australia's Wind Loadings Committee and feed into the review of the Australian Building Codes Board (ABCB) building code regions (w.r.t. wind loading). This output is focussed on Stage 1 of the National Wind Risk Assessment for the DCCEE, which will provide the baseline national severe wind hazard map for current climate, based on the combined outputs of GA-developed cyclonic, synoptic and thunderstorm hazard models, and pilot studies addressing future climate hazard and risk in four pilot areas. This output is also contributing to the Climate Futures Tasmania project, funded by the Commonwealth Environment Research Fund.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

- Satisfaction of client with products; secured continuing funding.
- Positive feedback from research community and stakeholders products
- Uptake of web-delivered information.

6.1.5 Output Delivery Date:

Q1

Q2

Q3 Delivery of the web-based and stand-alone modules describing current and future climate wind hazard/risk in Tasmania to the Tasmanian SES

Q4 Delivery of Stage 1 report of the National Wind Risk Assessment to the DCCEE

6.2 Output 2: Coastal Vulnerability to Inundation and Recession

6.2.1 Description:

Provide all levels of government and the public with information, tools and datasets on coastal hazards associated with sea-level rise due to climate change. This output will focus on the impact and risk from coastal inundation and coastal recession due to sea-level rise and storm-surge, and will include the provision of fundamental data such as coastal geomorphology polygon mapping. Following completion of the first-pass National Coastal Vulnerability Assessment, this output will incorporate a pilot study second-pass vulnerability assessment, with the aim of developing a generic methodology for use in other areas.

6.2.2 Output Type:

Business as Usual

Project

6.2.4 Key Performance Indicators:

- Satisfaction of client of products delivered.
- Positive feedback from stakeholders in Wollongong to Newcastle about the infill maps.

6.2.5 Output Delivery Date:

Q1

Q2 Completion and delivery of the National Coastal Geomorphic Map – Stage 1 to the DCCEE

Q3 Completion and delivery of the Wollongong to Newcastle Infill Mapping to the DCCEE.

Q4

6.3 Output 3: Bushfire Risk

6.3.1 Description: Provide all levels of government and the public with better information and tools on the impact and risk of bushfires. This output will focus on the development of decision-support tools for the use in emergency management planning by State and Federal authorities.

6.3.2 Output Type:

Business as Usual

Project

6.3.4 Key Performance Indicators:

- Completion and delivery of a first-pass bushfire ignition map to the Satisfaction of Bushfire CRC of products delivered.

6.3.5 Output Delivery Date:

Q1

Q2

Q3

Q4 Deliver the first-pass ignition map (expected to be developed for Southeast Australia) to the BCRC

6.4 Output 4: Offshore Hazard / Vulnerability Assessment (activities outside Australia)

6.4.1 Description: Provide the appropriate Australian and international government agencies and the public with better information and tools on the impact and risk of some climatic hazards. This work is part of the Pacific Climate Change Science Program component of the International Climate Change Adaptation Initiative, which is run by CSIRO on behalf of the DCCEE/AusAID. This output will focus on the development of decision-support tools for assessing risk to some climatic hazards by the appropriate authorities in partner countries in the Pacific region. In particular, this output will further develop GA's Tropical Cyclone Risk Model to deploy this in-country with relevant partner country agencies, providing assistance and training where required in order to build local capability.

6.4.2 Output Type:

Business as Usual

Project

6.4.4 Key Performance Indicators:

- Completion and delivery of GA's contribution to the PCCSP Final Report to the Pacific Climate Change Science Program. Satisfaction of client of report delivered.

6.4.5 Output Delivery Date:

Q1

Q2

Q3

Q4 Deliver GA's contribution to the PCCSP Final Report to the Program Management Committee.

NATURAL HAZARD IMPACTS PROJECT

- 1. Project Description:** The Project aims to define the natural hazard risk in Australia and the region from a range of natural hazards including earthquake, tsunami, landslide, storm surge inundation, volcanic eruptions and flood. This activity will provide risk assessment models, methods and tools to support a range of risk mitigation options including emergency response, recovery and preparedness, disaster risk reduction, building regulation, land-use planning and insurance. This Project also manages, and is a key provider of, Geoscience Australia's technical expertise and advice to the Australian Agency for International Development (AusAID). Development of natural hazard risk information is the key focus of support to AusAID, in line with the AusAID's Disaster Risk Reduction policy.
- 2. Project Outcome:** The management of natural hazard risk is underpinned by innovative risk assessments and the sustainable development of scientific capacity within government agencies in our region.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Natural Hazard Risk Modelling.**
 - 6.1.1 Description:** Contributions to key Australian and State Government initiatives surrounding the development of risk modelling tools and capabilities for local scale hydrological and earthquake hazards and providing natural hazard information and advice to support the National Disaster Resilience Strategy. This information and advice will surround the maintenance and support of the flood and landslide databases and Natural Hazards Online. The Project will participate in the Global Earthquake Model (GEM) activities to enhance knowledge of earthquake hazard and risk. The modelling component will focus on the continued development of the free and open-source software ANUGA (for flood, storm surge inundation and debris flow modelling) and EQRM (earthquake risk modelling).
 - 6.1.2 Output Type:**
Business as Usual Project

6.1.4 Key Performance Indicators:

- Stakeholder satisfaction with national hazard products and advice and access to geospatial information.
- Stakeholder uptake of and satisfaction with free and open-source software ANUGA and EQRM.
- Publication of volcanic hazards in Asia-Pacific article in Natural Hazards journal.

Revised versions of ANUGA and EQRM released as open source codes.

Publication of volcanic hazards in Asia-Pacific article in Natural Hazards journal.

6.1.5 Output Delivery Date:

Q1

Q2 Stakeholder workshop to define flood and storm surge inundation modelling approaches for ANUGA.

Q3 Flood reports added to Australian Flood Studies Database by stakeholders.
Landslide records added to landslide database by stakeholders.

Q4 Revised versions of ANUGA and EQRM released as open source codes Enhanced EQRM to support the needs of internal and external stakeholders.
Enhanced ANUGA to support flood and storm surge inundation modelling.

6.2 Output 2: Australia-Indonesia Facility for Disaster Reduction (AIFDR).

6.2.1 Description: Support AusAID to implement the AIFDR work program with a specific focus on providing scientific tools and expertise to quantify hazards in Indonesia, and for the computation of risk based on exposure and vulnerability. GA will provide technical support to the AIFDR risk and vulnerability work stream in the development of: 1) volcanic ash risk information; 2) earthquake hazard information; 3) post-disaster engineering analysis; and 4) scoping other potential areas for support.

6.2.2 Output Type:

Business as Usual

Project

6.2.4 Key Performance Indicators:

- Stakeholder satisfaction with national hazard and risk products and advice.
- Acceptance of reports by AusAID and Government of Indonesia.
- Stakeholder engagement in workshops (earthquake site response, probabilistic seismic hazard assessment and post-disaster engineering assessments).
- Delivery of report on active faulting pilot study to AusAID.
- Delivery of volcanic ash probabilistic hazard and qualitative risk map for West Java to AusAID and Government of Indonesia.

6.2.5 Output Delivery Date:

Q1

Q2 Enhanced volcanic ash model to conduct probabilistic modelling.
Workshop on earthquake site response in Indonesia.

Q3 Report to AIFDR on pilot study on active faulting in Indonesia.
Probabilistic Seismic Hazard Assessment for Sumatra.

Q4 Volcanic ash probabilistic hazard and qualitative risk map for West Java
Workshop on Probabilistic Seismic Hazard Assessment in Indonesia.
Probabilistic Seismic Hazard Assessment for Sumatra.

6.3 Output 3: Strengthening Natural Hazard Risk Assessment Capacity in the Philippines.

6.3.1 Description: Support AusAID’s disaster risk reduction goals in the Philippines by developing long-term partnerships between Government of Philippines (GoP) technical agencies, AusAID and Geoscience Australia in order to better understand, and in the longer term reduce the risk from natural hazards in the Philippines. The third year of this three-year program, funded by AusAID’s Disaster Risk Reduction program, will be focused on supporting the GoP to develop the capability to model the impacts of earthquakes and deliver this information to vulnerable communities.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

- Delivery of national and local exposure databases to AusAID for Government of Philippines.
- Delivery of report on earthquake impact for pilot community to AusAID for Government of Philippines.
- Delivery of final report on Activity to AusAID.

6.3.5 Output Delivery Date:

Q1 Pilot community exposure database and national scale exposure databases completed to support earthquake impact analysis.

Q2 Reproduce previous earthquake analysis using national exposure database and vulnerability models.

Q3 Earthquake impact modelling for Pilot community.

Q4 Earthquake impact report for Pilot community and final AusAID report

6.4 Output 4: Supporting the Development of Natural Hazard Risk Information in Greater Manila, Philippines.

6.4.1 Description: Support AusAID’s Metro Manila Rehabilitation and Recovery program in the Philippines, specifically the development of earthquake, severe wind and flood risk information for Manila. This program will be implemented in partnership with Government of Philippines (GoP) technical agencies. The first year of this three-year program, funded by AusAID-Manila, will focus on the acquisition of a high-resolution Digital Elevation Model (DEM) for Manila, development of detailed project plans, collection and integration of existing information on exposure, flood vulnerability analysis and first steps towards better understanding earthquake hazard.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators:

- Detailed scientific plans for the three-year project accepted by AusAID.
- Uptake of information and knowledge generated through natural hazard risk assessments.
- Acceptance of final reports by AusAID and stakeholders.
- Deliver an exposure database to AusAID for Government of Philippines.
- Delivery of high-resolution Digital Elevation Model for Manila to AusAID for Government of Philippines.
- Successful workshop in Manila for GoP agencies on risk assessment methodology and exposure data.

6.4.5 Output Delivery Date:

- Q1** Detailed scientific plans for the three-year project provided to AusAID.
- Q2** Collection of existing data to develop exposure database and delivered to GoP. Workshop in Manila for GoP agencies on risk assessment methodology and exposure data.
- Q3** Flood vulnerability models developed.
Review and selection of flood model software.
Pilot exposure database for Taguig City delivered to AusAID.
- Q4** High-resolution Digital Elevation Model (DEM) for Manila.

6.5 Output 5: Strengthening Natural Hazard Risk Assessment Capacity in Papua New Guinea (PNG)

6.5.1 Description: Support AusAID's (PNG) program and the Government of PNG (GoPNG) to develop a better understanding of natural hazards and their risks in a PNG pilot province. The first year of this three-year program, funded by AusAID-Port Moresby, will focus on the development of governance frameworks, development of a natural hazard risk gaps analysis paper, selection of a pilot province, development of a scientific work plan, collection and integration of existing datasets and the training of GoPNG staff in natural hazard risk analysis.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators:

- Signed Memorandum's of Understandings between GA and GoPNG agencies.
- Scientific work plan for the three-year program provided to AusAID.
- Stakeholders and AusAID satisfied with progress of project and continue funding to next fiscal year. Delivery of natural hazard risk gaps analysis report to AusAID for the Government of Papua New Guinea.

6.5.5 Output Delivery Date:

- Q1**
- Q2** Signed Memorandum's of Understandings between GA and GoPNG agencies.
Scientific work plan for the three-year program provided to AusAID.
- Q3** Report on natural hazard risk gaps analysis provided to GoPNG and AusAID.
- Q4** Natural hazard risk analysis workshop held at GA for GoPNG staff.

ENGINEERING, ECONOMICS AND EXPOSURE PROJECT

- 1. Project Description:** The project develops for other RIAG projects and external stakeholders an understanding of what assets, business activity and people are exposed to severe events, how vulnerable they are to the hazard and what are the consequences of exposure. To this end the project develops engineering, economic and social vulnerability models for the built environment that are representative of buildings, critical infrastructure and the economic activity associated with them. In parallel, the project is also developing a national definition of infrastructure, business and demographic exposure.
- 2. Project Outcome:** Stakeholders and developing nations are able to make reliably informed decisions to manage the risk from natural hazards and malevolent acts. Impacts of natural hazards on critical infrastructure are reliably assessed in terms of physical damage, and socio-economic loss.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1:** Development of the National Exposure Information System (NEXIS)
 - 6.1.1 Description:** Development of the National Exposure Information System (NEXIS) covers the augmentation of the capability to include a broader and more detailed range of information on infrastructure and people (part funded by DCCEE). It also includes the enablement of 3D visualisation of buildings in central business districts, delivery of an “operational” capability for generating national residential, business, institutions and demographic exposure information for Australia derived from and consistent with nationally available datasets, upgrade of these capabilities through specific exposure information sourced from the jurisdictions and scope and develop an approach for exposure databases for developing nations. The advisory contributions to regional exposure development are captured under the Natural Hazards Impacts Project plan.
 - 6.1.2 Output Type:**
Business as Usual Project

6.1.4 Key Performance Indicators:

- Enabled 3D visualisation tool for exposure and impacts
- Development of 3D visualisation tool for NEXIS.
- Continued demand for and satisfaction with NEXIS products by stakeholders.
- Acceptance by DCCEE of augmented NEXIS capability.

6.1.2 Output Delivery Date:

- Q1 Enabled 3D visualisation tool for exposure and impacts
- Q2 Implementation of decision support tools – pilot study
- Q3
- Q4 NEXIS release with demographic data incorporated
NEXIS information system for the built environment for DCCEE

6.2 Output 2: Development of Vulnerability Models for Building Structures

6.2.1 Description: Develop vulnerability models for buildings used for a range of purposes including those that house critical infrastructure assets. Models are developed (where possible) to enable the quantitative assessment of the benefits of adaptation. Natural hazards of interest include severe wind, flooding, volcanic tephra, earthquake and tsunami. (The budget and vulnerability outputs for the regional AusAID program, including the Metro Manila project, are captured under the NHI project plan.)

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

- Deliver Uptake of and positive feedback on beta version of wind vulnerability software (WindSIM), including additional modelling capabilities for residential and industrial building types.
- Positive feedback on wind vulnerability workshop.

6.2.2 Output Delivery Date:

- Q1
- Q2 Convening of wind vulnerability workshop of expert wind engineering community.
- Q3
- Q4 Delivery of augmented WindSIM wind vulnerability software to DCC as open source software tool

6.3 Output 3: Physical, Economic and Social Vulnerability Model Development in Support of Critical Infrastructure Program : Modelling and Analysis (CIPMA)

6.3.1 Description: Development and adaptation of all-hazards physical vulnerability models for central business district urban precincts and critical infrastructure assets. The development of economic models to assess the impact of all hazards including the evaluation of direct and indirect losses, casualty costs, and economy wide effects. The social analysis of impacted communities emphasising demographic tools and models. Work is being progressed under direct CIPMA funding from AGD and additional cost-recovered funding from the Australian Reinsurance Pool Corporation (ARPC) through AGD.

6.3.2 Output Type:

Business as Usual

Project

6.3.4 Key Performance Indicators:

- Complete the primary terrorist impact analysis models for the Australian Reinsurance Pool Corporation
- Acceptance by AGD and ARPC of outputs.
- Positive support and feedback from industry stakeholders.

6.3.5 Output Delivery Date:

Q1 Augmented transmission line vulnerability models in support of tasking.

Q1 Reduced time scale The Enormous Regional Model (TERM) modelling capability

Q2 Final casualty cost models

Q3 Delivery of partial damage models for blast impacts on buildings for ARPC Bushfire vulnerability models for Telco tower assets

Q4 Primary impact modelling tools for Australian Reinsurance Pool Corporation project ARPC.

CRITICAL INFRASTRUCTURE PROJECT

1. **Project Description:** The Critical Infrastructure Project, as part of the Attorney-General's Department Critical Infrastructure Program for Modelling & Analysis (CIPMA), runs scenarios to model the potential consequences of a disruption to critical services such as banking & finance, transport, water, energy and telecommunications. CIP has carriage of housing and maintaining data, models, and IT infrastructure to run the scenarios; engage and liaise with industry experts; and implement a "tasking" program where specific requests from infrastructure owners or government agencies are run using the CIPMA capability to assess the impact of disruptions on other sectors, the economy and society.
2. **Project Outcome:** Identification of critical infrastructure and determination of risks to infrastructure owners, the economy and society.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1:** Provision of an operational CIPMA Program providing reports and other products for Industry and Government tasking applicants.
 - 6.1.1 **Description:** An operational CIPMA capability that is open to tasking by industry and Government to model and analyse system behaviour, consequences of CI failure and interdependencies across priority infrastructure sectors. This work is based on 3 Tasking rounds a year or the emergence of urgent tasking demands. Prioritisation of the development of capability will be driven by tasking requests.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
 - Delivery of outputs against CIPMA Implementation Plan to agreed timetable with Attorney-General's Department and clients, including:
 - Sydney Water Climate Change Impact tasking
 - Department of Climate Change electricity impact tasking
 - Banking & Finance task

- Submarine Cables outage task
- Port disruption task
- Stage 1 of Liquid Fuels disruption task
- Water / Energy disruption task
- Other tasking as agreed to with Attorney-General's Department based on tasking rounds and available resourcing

6.1.5 Output Delivery Date:

Q1-Q4 As prioritised in Task Log upon agreement with Attorney-General's Department; Task Log will be reviewed regularly.

GROUNDWATER GROUP

The key role of the Groundwater Group is to extend and enhance the Australian Government's capability to address groundwater policy development and program administration. It will do this by applying geoscientific expertise to the mapping and understanding of Australia's groundwater systems and their impacts upon the management of broader environmental and natural resource assets. The Group undertakes a number of applied research activities of national significance. Activities are principally carried out with multi-agency teams including relevant Federal, State agencies, and the private sector as required. Additional activities are anticipated but these are currently under negotiation with client agencies and have only been included if there is a strong indication from funding agencies that project contracts are under development.

The Groundwater Group work is conducted through three (3) projects:

- Groundwater Geoscience Project
- Aquifer Systems and Water Quality Mapping Project
- Groundwater Advice and Information

GROUNDWATER GEOSCIENCE PROJECT

1. **Project Description:** The project will develop and apply GA’s hydrogeoscientific expertise to improving understanding of groundwater resource sustainability and management. The project will involve externally-funded sub-projects carried out in multi-agency teams involving DEWHA, RET, BOM, relevant State agencies, and the private sector as required. Clients are principally Australian Government agencies. The project also contributes to other initiatives within GA including the provision of groundwater expertise into GA’s Domestic Carbon Capture and Storage – Regulatory project.
2. **Project Outcome:** Stakeholders across government and the private sector are able to make informed decisions in order to manage groundwater resources more effectively.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 Output 1: Water for Australia’s Arid Zone - Identifying and Assessing Australia’s Palaeovalley Groundwater Resources
 - 6.1.1 **Description:** This project comprises an integrated set of seven regional studies coordinated to develop improved understanding and management of palaeovalley groundwater resources across a wide range of Australia’s arid to semi-arid geologic and climatic environments. Work involves extensive data review and analysis, and acquisition of new remote and field-based datasets.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
Acceptance of milestone reports by client (National Water Commission)

6.1.5 Output Delivery Date:

Q1 Milestone 6 Progress Report on outcomes of 3rd Technical Group Workshop (July 2010) to the National Water Commission

Q2

Q3 Milestone 7 Report on progress of field investigations during second major fieldwork phase (January 2011) to the National Water Commission

Q4

6.2 Output 2: Sustainable Management of Coastal Groundwater Resources

6.2.1 Description: This partnership project focuses on the use of remote sensing to provide insights into the groundwater dependence of ecosystems associated with coastal dune sand aquifers in the Kempsey region of northern NSW. GA's major deliverables will have been completed the previous financial year, but GA will have an ongoing role providing advice to the broader (external) project team.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Acceptance of milestone reports by client (National Water Commission)

6.2.5 Output Delivery Date:

Q1 Ongoing advice to broader project team outside GA

Q2 Ongoing advice to broader project team outside GA

Q3 Ongoing advice to broader project team outside GA

Q4 Ongoing advice to broader project team outside GA

6.3 Output 3: Great Artesian Basin Water Resources Study

6.3.1 Description: This activity will provide hydrogeological and remote sensing support to the joint GA/CSIRO assessment of current and future water availability in the Great Artesian Basin.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

Acceptance of milestone reports by client (Department of Environment, Heritage and the Arts)

6.3.2 Output Delivery Date:

Q1

Q2

Q3

Q4 Technical report synthesising existing information and a 3D model of the hydrostratigraphy of the GAB to DEWHA

6.4 Output 4: Recharge-Discharge Mapping.

6.4.1 Description: This activity (joint with CSIRO) will demonstrate the application of a nationally consistent method for mapping groundwater recharge and discharge areas in data poor areas. It will build upon the literature review already undertaken in the first phase of this project, and develop and apply a method for mapping recharge and discharge to one

case study catchment. The activity will also provide input to other case studies being undertaken by CSIRO.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators:

- Acceptance of peer-reviewed papers and delivery of presentations at Australasian conferences
- Successful internal review and publication of GA records.
- Successful external review and acceptance of project final report by the client (National Water Commission).

6.3.5 Output Delivery Date:

Q1

Q2

Q3

Q4 Progress report to the National Water Commission

AQUIFER SYSTEMS AND WATER QUALITY MAPPING

- 1. Project Description:** The project will develop and apply integrated geoscience systems approaches to the mapping and characterisation of Australia's groundwater resources, and will include the 3D mapping of aquifer systems, the assessment of aquifers for managed aquifer recharge, assessment of the brackish groundwater resource, as well as mapping and assessing salinity hazards and broader environmental threats within the context of the broader climate change debate. The project will also provide geoscientific support for the Commonwealth's groundwater and natural resource management policy development and program administration, and also play a lead role in knowledge transfer activities.

The project will involve a number of externally-funded sub-projects carried out independently, and in multi-agency teams including CSIRO's Water for a Healthy Country (WfHC) Flagship Program, relevant State agencies, and the private sector as required. Clients are principally the Federal Government (eg DEWHA, NWC).

- 2. Project Outcome:** An improved geoscientific basis for groundwater resource assessment and integrated groundwater, salinity and broader natural resources management for Commonwealth and jurisdictional governments, regional communities and the irrigation sector.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Broken Hill Managed Aquifer Recharge Phase II.

6.1.1 Description: This activity will provide an assessment of the suitability of aquifers in the Darling Floodplain for developing an integrated water supply strategy for Broken Hill while allowing for environmental flows to be returned to the Murray Darling system from Menindee Lakes.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

- Acceptance of peer-reviewed papers and delivery of presentations at international and Australasian hydrogeological and managed aquifer recharge conferences
- Successful internal review and publication of GA records.
- Successful external review and acceptance of project final report by the client (Department of Environment, Heritage and The Arts).

6.1.5 Output Delivery Date:

- Q1 Final project report to DEWHA
Q2
Q3
Q4

6.2 Output 2: Northern Territory Coastal Plain.

6.2.1 Description: This second phase of an existing project will use the AEM and related hydrogeological data collected in the first phase of the project to define groundwater systems in the Northern Territory Coastal Plain and the potential for seawater intrusion in coastal plain aquifers.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

- Acceptance of peer-reviewed papers and delivery of presentations at international and Australasian hydrogeological and geophysical conferences
- Successful internal review and publication of GA records.
- Successful external review and acceptance of project final report by the client (National Water Commission).

6.2.5 Output Delivery Date:

- Q1
Q2 Progress report to the National Water Commission
Q3
Q4 Final project report to the National Water Commission

6.3 Output 3: National Groundwater Conference

6.3.1 Description: This activity will coordinate the National Groundwater Conference being held in Canberra in October 2010. Tasks will include the review of conference papers, the organisation of conference logistics, and the publication of conference proceedings.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

Successful delivery of the conference as evidenced through formal feedback from attendees and sponsor organisations.

6.3.5 Output Delivery Date:

Q1

Q2 Conference held

Q3 Publication of Conference proceedings

Q4

GROUNDWATER ADVICE AND INFORMATION

1. **Project Description:** The project provides the Australian Government with expert geoscientific information and recommendations in support of groundwater policy development and program administration regarding groundwater resources and environmental and mining impacts.

The project provides services directly to the Department of Resources, Energy and Tourism. It is part funded by and provides advice on occasion to the Department of Environment, Water, Heritage and the Arts.

2. **Project Outcome:** Improved decision making across government agencies regarding Australia's groundwater resources and industry and environmental impacts.

3. **Project Link(s) to Intermediate-level Agency Outcomes:**

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals:**

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information:**

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs:**

6.1 **Output 1: Groundwater Advice**

6.1.1 **Description:** This activity includes advice to other Commonwealth agencies including the Department of Resources, Energy and Tourism (RET) and Department of Environment, Water, Heritage and the Arts (DEWHA), on groundwater-related implications of Departmental policy making that may include uranium mining, other mining activities, groundwater management, and groundwater-dependent ecosystems management.

6.1.2 **Output Type:**

Business as Usual Project

6.1.4 **Key Performance Indicators:**

Information and product requests from client received and delivered.

6.1.5 **Output Delivery Date:**

- Q1 Ongoing advice as requested
- Q2 Ongoing advice as requested
- Q3 Ongoing advice as requested
- Q4 Ongoing advice as requested

6.2 Output 1: National Seawater Intrusion

6.2.1 Description: This activity will use the national conceptual type models of coastal aquifer systems developed in the first phase of the project to develop a spatial framework for managing seawater intrusion, and will use numerical modelling of these generic type examples to explore the sensitivity of different systems to sea water intrusion under current development and climate scenarios.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Progress and milestone reports delivered on schedule and accepted by client (National Water Commission).

6.2.5 Output Delivery Date:

Q1

Q2

Q3 Progress report to the National Water Commission on the availability of relevant national datasets, GIS assessment and compilation of generic conceptual models of typical Australian coastal aquifer for Sea Water Intrusion vulnerability assessment

Q4 Milestone 2 Report to the National Water Commission on results of modelling of Sea Water Intrusion due to current and future groundwater extraction scenarios, including assessment of Sea Water Intrusion extent and Sea Water Intrusion vulnerability under conditions typical of a selection of Australian coastal aquifer systems

6.3 Output 1: East Timor Groundwater

6.3.1 Description: This activity will establish a hydrogeomorphic framework for understanding groundwater processes in the Dili region, and develop a training program to build local capacity and encourage the use of this framework as a basis for groundwater decision making.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

Progress and milestone reports delivered on schedule and accepted by clients (Department of Climate Change and Energy Efficiency and AusAID) and local stakeholders in the East Timor Government.

6.3.5 Output Delivery Date:

Q1

Q2 A summary report on key groundwater issues and adaptation measures for Timor-Leste and a report on regional 'biogeographic' framework for undertaking groundwater vulnerability assessments

Q3

Q4

NATIONAL EARTH OBSERVATION GROUP

NEO is Australia's national remote sensing capability. NEO provides advice on the use of EOS (Earth observations from space) in national programs; provides data and information about the land and marine jurisdictions such as the National Dynamic Landcover Map and bathymetric mapping; and provides information on hazards and major disasters including the Sentinel web site and flood mapping. NEO maintains archives of imagery captured from satellites and acquires EOS data from international satellite operators and from commercial sources. NEO works closely with key stakeholders in the Australian Government under formal Collaborative Agreements.

Work is conducted through five (5) projects:

- Business Intelligence and Services Section
- International Forest Carbon Initiative
- Science and Strategy Section
- Business Systems Development Section
- Operations Section

Business intelligence and services

- 1. Project Description:** The Business Intelligence and Services Section (BIS) coordinates engagement with internal and external stakeholders and clients of Earth observation data including management of the Optical, Geospatial, Radar and Elevation, or OGRE, Panel, dialogue with DIISR in regard to space policy, provision of day to day client services, management of agreements at all levels, dialogue with distributors, convening of the National Remote Sensing Technical Reference Group and (in the future) provision of Regional Hub services under the IFCI program. Provides advice to Earth observation users and maintains key relationships both with users and suppliers of data and information.
- 2. Project Outcome:** Improved EOS services. Improved knowledge of GA's Earth observations from space capabilities in the Australian Government. Simplified purchasing of EOS data in GA and across government including efficiencies.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**

6.1 Output 1: Advice and information to Government in regard to EOS and space policy

6.1.1 Description: Coordinate the provision of advice and information to DIISR and NEO/GA participation in relevant meetings to inform the development of Australian space policy. Coordinate GA representation at the Australian Government Space Forum (AGSF) and space-industry forums.

6.1.2 Output Type:
Business as Usual Project

6.1.3 Key Performance Indicators: (1) Support from DIISR for additional funding to GA/NEO to develop national EOS capabilities.

6.1.4 Output Delivery Date:

- Q1 Outputs to be produced as required by DIISR & AGSF
Q2 Outputs to be produced as required by DIISR & AGSF
Q3 Outputs to be produced as required by DIISR & AGSF
Q4 Outputs to be produced as required by DIISR & AGSF

6.2 Output 2: Operate the Cooperative Imagery Panel (OGRE panel)

6.2.1 Description: Manage procurements through the OGRE panel for GA. Implement management arrangements for OGRE that lead to self-funded, on-going capability. Participate in negotiations with industry.

6.2.2 Output Type:
Business as Usual Project

6.2.3 Key Performance Indicators: (1) Percentage of GA EOS procurements that utilise the OGRE Panel (2) Value of funds passing through the panel. (3) Number of participating agencies. (4) Governance and funding arrangements are in place.

6.2.4 Output Delivery Date:

- Q1 Initial panel established
Q2 Legal and governance framework formally accepted
Q3
Q4 Data flowing to state nodes utilising panel

6.3 Output 3: Provide services and support for EOS clients

6.3.1 Description: Carry out client services functions to provide ongoing support to NEO's key clients, clients and distributors. This includes helpdesk, improving NEO web content and holding the annual NRSTRG meeting.

6.3.2 Output Type:
Business as Usual Project

6.3.3 Key Performance Indicators:: (1) Increase in positive feedback from stakeholders (2) Organise annual NRSTRG meeting (3) Annual visit to the state-based clients (4) External recognition of NEO projects

6.3.4 Output Delivery Date:

- Q1 Provide timely and appropriate support to clients
- Q2 Provide timely and appropriate support to clients
- Q3 Provide timely and appropriate support to clients
- Q4 Provide timely and appropriate support to clients

6.4 Output 4: Earth Observation Plan

6.4.1 Description: An operational plan for Earth observations from space at the national level. This will include the types of observations, their frequency, spatial and spectral resolution, geographic coverage and timing necessary to meet Australia's main on-going operational requirements for EOS data. It will inform data acquisition, data procurement, and data continuity.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators:

Key stakeholder groups endorse the plan (2) An agreed set of EO priorities that drives data acquisition plans

6.4.5 Output Delivery Date:

- Q1 Initial draft of basic observation scenario submitted for external review
- Q2 Document to be completed
- Q3
- Q4

INTERNATIONAL FOREST CARBON INITIATIVE

1. Project Description: Manages GA's participation in the Australian Government's International Forest Carbon Initiative. This is cost-recovered from DCCEE. The project scope, budget and objectives are specified in Project Agreements authorised under the 2007 Collaborative Head Agreement (CHA) between GA and what is now the Department of Climate Change and Energy Efficiency (DCCEE). The Agreement was recently extended to 31 December 2011, with additional funding provided.

2. Project Outcome: GA is capable to operate a 'regional processing hub' for forest monitoring which meets the requirements of DCCEE and AusAID.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Supply satellite data and services.

6.1.1 Description: Supply Landsat scenes, and other data as required, to international IFCI participants and AusAID.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

Client satisfaction as determined through regular project committee meetings and extensions to current project agreement.

Bulk ortho-rectification system implemented; Cloud / haze detection and removal system implemented with external review; Atmospheric correction system implemented with external review; Mosaic system implemented with external review; Systems capable of reliable production of standardised Earth Observation products at rates exceeding 5 000 per annum.

Output Delivery Date:

Q1 1000 scenes of data provided

Q2 1000 scenes of data provided

Q3 1000 scenes of data provided

Q4 1000 scenes of data provided

6.2 Output 2: Regional Processing Hub for IFCI

6.2.1 Description: Implement a “regional hub” for forest monitoring to support Australia’s role in and contribution to GEO Forest Carbon Tracking

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Level of use of regional hub by DCCEE’s nominees.

6.2.5 Output Delivery Date:

Q1 Hardware platforms in place

Q2 Software layer implemented

Q3 Initial processing systems for orthorectification implemented

Q4 Initial processing systems for cloud masking implemented

SCIENCE & STRATEGY

1. **Project Description:** Develop and apply scientific methods for the calibration of satellite observations and methods for the analysis and application of Earth observation to Government, GA, and NEO priorities. Provides emergency mapping responses when needed. Provides strategic scientific leadership in EOS.
2. **Project Outcome:** Increased recognition of GA excellence in EOS. Increased impact of GA EOS through application of capabilities to areas such as land-cover monitoring, forest monitoring as part of Australia's International Forest Carbon Initiative, water management, coastal management, energy resources, and emergency response. GA capability and capacity in Earth observation from space is increased through inputs to the development of scientific data processing systems.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Landcover mapping and scientific support for information products associated with the IFCI project**
 - 6.1.1 **Description:** Landcover mapping – deliver scientific processing methods (algorithms suitable for automated processing with operational systems) for water, cloud and fractional cover products based on Landsat-scale input data. Support for scientific processing and delivery of information products for the IFCI project.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:** Scientific methods developed for land cover mapping published in conference or peer-reviewed journal papers; 2000 Landsat images processed in development environment; acceptance of methods and data products by key stakeholders in the Australian Government

6.1.5 Output Delivery Date:

- Q1 Report on NBAR ancillary data preparation
- Q2
- Q3 Report on Algorithm Theoretical Basis for processing methods
- Q4 Scientifically peer-reviewed paper published

6.2 Output 2: Shallow-water bathymetry using optical remote sensing data

6.2.1 Description: Publish methods for bathymetric mapping of clear, shallow water over large areas based on optical remote sensing imagery. Work with the Australian Hydrographic Office to identify capabilities and requirements for routine production of ‘pre-survey’ depth maps.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators: Externally published paper in peer reviewed proceedings or journal. GA seminar on methods and their application at Lord Howe Island. Investment in these methods by the Australian Hydrographic Office and/or other Australian or State Government agencies

6.2.5 Output Delivery Date:

- Q1
- Q2 Report on Bathymetry estimation for pilot areas over the GBR
- Q3
- Q4 Scientifically peer-reviewed paper published

6.3 Output 3: Remote sensing support for the Offshore Energy Security Program at GA

6.3.1 Description:

Develop methods for efficient remote-sensing based detection and characterisation of natural oil seeps in the Australian Marine Jurisdiction in support of PMD’s Offshore Energy Security Program.

6.3.2 Output Type:

Business as Usual Project

6.3.3 Key Performance Indicators: Externally published paper in peer reviewed proceedings or journal. Presentation of a GA seminar on the methods and their application in major petroleum provinces. Adoption of these methods by PMD and/or industry for routine use.

6.3.4 Output Delivery Dates

- Q1
- Q2 Image for study areas screened and report delivered
- Q3 Report on science data evaluation delivered
- Q4 Scientifically peer-reviewed paper published

6.4 Output 4: Deliverables for NCRIS funded projects - Terrestrial Ecosystems Research Network (TERN); Integrated Marine Observing System (IMOS) and AuScope EIF3 (TBD)

6.4.1 Description: Participate as an effective and influential member of the TERN-AusCover and IMOS communities, including satisfactory completion of joint projects.

6.4.2 Output Type:
Business as Usual Project

6.4.4 Key Performance Indicators: GA component of TERN/IMOS delivered to the satisfaction of clients; agreement is achieved with key players on the methods for NBAR processing of Landsat-like data. Key EOS data products are available to the research community through TERN/IMOS/NCI.

6.4.5 Output Delivery Date:
Q1 MODIS surface reflectance products (MOD09) delivered
Q2 MODIS NBAR corrected products (MOD43) delivered
Q3 Report on evaluation of GA correction methods completed for selected TERN sites
Q4 Deliver data for IMOS ocean colour processing

6.5 Output 5: Improved Calibration of Earth observation data

6.5.1 Description:
Maintains two ASD FieldSpec® handheld spectroradiometers for use in the collection of field spectral measurements by eligible researchers in Australia. This increases GA's role in remote sensing data calibration. Spectral data from field campaigns progressively build a national database of field spectral data that can be accessed for calibration and validation.

6.5.2 Output Type:
Business as Usual Project

6.5.3 Key Performance Indicators: Instruments are maintained in operational condition. Data from field surveys are repatriated to GA and are properly managed

6.5.4 Output Delivery Date:
Q1 Field spectrometer loan
Q2 Field spectrometer loan
Q3 Field spectrometer loan
Q4 Field spectrometer loan

BUSINESS SYSTEMS DEVELOPMENT

- 1. Project Description:** NEO Systems Development develops, working closely with ISB, the necessary operational capabilities (data processing, data archive, serving of data, systems for scientific analysis of data) to meet the expectations of clients and stakeholders, operationalises new services and provides project and programme management capabilities to NEO as a whole.
- 2. Project Outcome:** NEO has rigorous programme and project management capabilities in place. All Projects are supported by appropriate documentation and governance. Systems are designed and implemented in a timely and effective manner to support key priorities, in particular delivery on commitments to the International Forest Carbon Initiative (IFCI).
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Prototype data discovery and access interface.**
 - 6.1.1 Description:** Implement, in collaboration with other areas of GA, a working prototype for an improved data discovery and access interface system.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators:**
Prototype in place as part of the corporate systems for improved access to Earth observation data.
 - 6.1.5 Output Delivery Date:**
 - Q1
 - Q2
 - Q3 Data discovery and access interface system
 - Q4

6.2 Output 2: Provide services to the IFCI Project.

6.2.1 Description: Provide services to the IFCI Project to implement scalable data processing systems capable of large throughput (e.g., 50,000 scenes per annum from optical/radar sensors) as necessary to back-process EOS archives to information product level (geo-referenced, surface reflectance, biophysical parameters) and meet emerging requirements for EO data.

6.2.2 Output Type:
Business as Usual Project

6.2.3 Estimated Resources:
Staffing FTE: see IFCI Project Other Costs see IFCI Project

6.2.4 Key Performance Indicators:
Client satisfaction as determined through regular meetings.
Bulk ortho-rectification system implemented; Cloud / haze detection and removal system implemented with external review; Atmospheric correction system implemented with external review; Mosaic system implemented with external review.

6.2.5 Output Delivery Date:
Q1 Services provided to the IFCI project according to its plan (see IFCI Project)
Q2 Services provided to the IFCI project according to its plan (see IFCI Project)
Q3 Services provided to the IFCI project according to its plan (see IFCI Project)
Q4 Services provided to the IFCI project according to its plan (see IFCI Project)

6.3 Output 3: Operationalise NBAR.

6.3.1 Description: Operationalise, based on existing prototypes, the core NBAR processing algorithms for Landsat imagery. This also requires the development and implement of new system architecture to allow automatic batch processing for Landsat and MODIS data. The Land Cover project relies on this output.

6.3.2 Output Type:
Business as Usual Project

6.3.4 Key Performance Indicators:
Landsat data can be processed to 'NBAR' standard upon reception.

6.3.5 Output Delivery Date:

Q1 Landsat Product Generation System (LPGS) integrated into operational system; commence batch processing of Landsat data to Path level; manual system is developed to process Landsat NBAR imagery based on existing prototype
Q2 Upgrade and operationalise MODIS NBAR processing system
Q3 Upgrade LPGS to be able to generate orthorectified imagery; commence batch processing of Landsat data to orthorectified level
Q4 Operationalise Landsat NBAR processing system; commence routing processing of Landsat NBAR data

OPERATIONS

1. Project Description:

Acquire public-good Earth observation data for stakeholders according to agreed plans and priorities through a range of mechanisms. Maintain an archive of processed and raw data. Enable access to processed data. Operate information services for external and internal clients.

2. Project Outcome:

Geoscience Australia is able to provide cost-effective, timely, relevant, and on-going Earth observation data and information in support of Australian Government programs and the community.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Earth observation products and services to users.

6.1.1 Description: Raw data are processed into imagery either on demand (Landsat, ALOS, Radarsat, ERS-2) or on receipt (IRS-P6, Aqua, Terra). Raw data are maintained in an archive processed imagery also being archived in the Earth Observation Data Store (EODS).

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

Operational needs of key internal clients including IFCI are formally assessed and met.

6.1.5 Output Delivery Date:

- Q1 Earth observation data released systematically in all quarters throughout the year.
- Q2 Earth observation data released systematically in all quarters throughout the year.
- Q3 Earth observation data released systematically in all quarters throughout the year.
- Q4 Earth observation data released systematically in all quarters throughout the year.

6.2 Output 2: Implement International Forest Carbon Initiative (IFCI) ground station

6.2.1 Description: Provide technical services, expertise and advice in regard to tender evaluation, construction and commissioning of a Darwin ground station for DCCEE, in order to allow them to receive additional data for forest carbon monitoring.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

Client satisfaction determined at regular meetings

6.2.5 Output Delivery Date:

Q1 Provide timely technical advice and assistance to DCCEE according to mutually agreed plans.

Q2 Provide timely technical advice and assistance to DCCEE according to mutually agreed plans.

Q3 Provide timely technical advice and assistance to DCCEE according to mutually agreed plans.

Q4 Provide timely technical advice and assistance to DCCEE according to mutually agreed plans.

6.3 Output 3: National ground control point database and PRISM coverage

6.3.1 **Description:** Deliver a national ground control point dataset and reference images at 2.5 m resolution for use in government and the spatial information industry.

6.3.2 **Output Type:**

Business as Usual Project

6.3.4 **Key Performance Indicators:**

Level of interest and cooperation by other agencies and stakeholders

6.3.5 Output Delivery Date:

Q1 Primary ground control point database population completed.

Q2 Earth observation imagery path processing and secondary ground control point generation commenced.

Q3 Generation of national reference image at 2.5 m resolution commenced.

Q4 National reference image and ground control point database released for use in government and the spatial information industry.

CRC-SI2 Engagement

1. Project Description: Manage Geoscience Australia's relationship with the CRC-SI2. The CRC-SI2 is an enabler for GA work and is potentially relevant to:

- Geodesy / Auscope;
- Methods for ortho-rectification of remotely sensed imagery;
- Methods for the extraction of information from time-series of remotely sensed data.

This activity is not funded other than cash contributions to the CRC

2. Project Outcome: Improved value to GA from engagement with the CRC-SI2

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: This activity has no Outputs

6.1.1 Description:

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators:

GA is aware of and participates effectively in CRC-SI2 stakeholder engagement and decision-making forums where appropriate
Records of CRC-SI2 engagement are maintained

NATIONAL GEOGRAPHIC INFORMATION GROUP

The National Geographic Information Group (NGIG) provides authoritative geographic information services and products to inform evidence-based decision making, government policy, industry development needs and community wellbeing. The NGIG combines its capabilities in geographic information and knowledge management, data acquisition and stewardship, stakeholder and industry relationships, to form an integrated capability which has the capacity to adapt to current and emerging government priorities.

This is delivered in the form of scaleable fundamental theme-based spatial data sets, web delivery services, and geospatial analytics for government departments, emergency managers, defence, and the public.

The Group also plays a lead role in coordinating national topographic and thematic mapping activities and standards, through participation in the Intergovernmental Committee for Surveying and Mapping (ICSM) and other priority national coordination initiatives including the Office of Spatial Data Management (OSDM), National Spatial & Information Management (NSIM), and the Australia New Zealand Land Information Council (ANZLIC).

The National Geographic Information Group comprises four (4) Projects:

- Geographic Operations
- Geographic Services
- Natural Resources Information
- Geographic Information for Defence

The Seismographic Paper Records Scanning project is an internal activity focused on delivering scanned raster images of seismographic paper records for permanent storage.

GEOGRAPHIC OPERATIONS

1. **Project Description:** The capture and maintenance of fundamental geographic information to meet government priorities, emergency management mitigation and response, industry development and community needs. This is undertaken in collaboration with state and other Commonwealth agencies and industry partners through the National Topographic Information Coordination Initiative (NTICI).
2. **Project Outcome:** Government, industry and the community have access to fundamental spatial data via a program that meets their needs and reduces duplication in capture and maintenance.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Acquisition, Revision and Maintenance of Fundamental National Scale Topographic Data**
 - 6.1.2 **Description:**

On-going maintenance of priority themes in conjunction with emergency management organisations, state land information agencies, Australian Government agencies and other GA projects, in particular those related to Australian government priorities of emergency management, community safety in remote areas, safer transportation, and sustainable use of mineral and water resources.
 - 6.1.2 **Output Type:**

Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
 - Stewardship of fundamental geospatial data.
 - Revised data delivered to the database and to stakeholders in a timely manner and to stated quality levels.
 - Delivery of agreed NTICI program to jurisdictional stakeholders and Geoscience Australia

- Whole of government efficiencies in capture, storage and access for geographic information realised.

6.1.5 Output Delivery Date:

- Q1** Plan for loading legacy data in place
- Q2** Ord River and North Flinders Ranges projects completed
- Q3** Central Qld coast and Charleville projects completed
- Q4** All 2010/11 NTICI projects completed. All project data completed before May 2011 loaded into the database

GEOGRAPHIC SERVICES

1. **Project Description:** The Geographic Services Project provides three inter-related capabilities in support of internal project and external government requirements. These capabilities include providing coordination of governance and stakeholder relations; database development, management and administration, and application development; project services defined by specific government requirements, development of geographic and thematic products, and the development and delivery of web services.
2. **Project Outcome:** Government, industry and the community have ready access to authoritative national scale geographic information.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Maintenance and development of the National Geographic Information Database.**
 - 6.1.1 **Description:**
 - Maintenance and administration of the geographic database and digital product specifications.
 - Update and maintenance of geographic data in distribution database
 - Application development and support for the geographic database and digital products.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
 - Geographic database is used to develop all map products
 - Geographic database is used to derive distribution database
 - Distribution database is used to deliver internal and external data services
 - Stewardship of geographic data holdings enhanced

6.1.5 Output Delivery Date:

- Q1 Distribution database schema and update process design completed
- Q2 Topographic specification V6 update and harmonisation complete
- Q3 Distribution database population complete
- Q4 Distribution database updates complete

6.2 Output 2: Data and Map Products and Services.

6.2.1 Description:

- Implement a geospatial platform to deliver authoritative geographic information services and products ranging from large to small scale
- Maintenance and production of aeronautical maps in collaboration with AirServices Australia (externally funded)
- Development of Gazetteer of Australian Placenames 2010/11 on behalf of ICSM
- On-demand support for Department of Prime Minister and Cabinet, and other Australian Government agencies for the production of thematic maps
- Contribute to the Clean Energy Initiative – Solar Flagships Program by compiling solar and resource data including broad, regional pre-competitive prospectivity mapping on behalf of the Department in collaboration with relevant government and research agencies. (externally funded)

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators:

- Vector, Raster and Map products are used as authoritative sources for Australian geographic information.
- Air Services Australia satisfied with service provided.
- PM&C satisfied with service provided.
- Acceptance by RET of Solar Prospectivity Database (Phase 1)
- Decommission MapConnect from operations
- Commission 5 data web services (Global Map, Topo250k, AMSIS, Geofabric, Geology) available through corporate application

6.2.5 Output Delivery Date:

- Q1 Deliver aeronautical chart work program as agreed with AirServices Australia
 - Publish 1:5m Australian Territories Map
 - Finalise PLTS testing and setup for streamlined medium scale mapping series
- Q2 Complete Solar Prospectivity Database (Phase 1) for RET
 - Complete on-demand map publications as requested by PM&C
 - Development and testing of web data services
- Q3 Deliver aeronautical chart work program as agreed with AirServices Australia
 - Development of updated 2010/11 Gazetteer of Australian Placenames on behalf of ICSM
- Q4 Complete on-demand map publications as requested by PM&C
 - Deliver up to 5 production based web data services (Global Map, Topo250k, AMSIS, Geofabric, and Geology)
 - Produce updated small scale map series
 - Complete revision of priority medium scale map areas

6.3 Output 3: Governance and Stakeholder/Sector relationship management

6.3.1 Description:

- Provide ICSM secretariat services
- Coordination and provision of advice, promotion and development of best practice technical standards for geographic information through peak government/industry initiatives including ICSM, OSDM, ANZLIC and NSIM.
- Coordinate the development of appropriate governance through the establishment of Head Agreement Project Schedules, MoUs, and agreements with governments and industry
- Coordinate geographic information product development, publications and conference material
- Group Communications plan developed and implemented internally and externally for stakeholders

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators:

- ICSM committee and working groups satisfied with secretariat services
- Project schedules developed for ICSM/NTICI participants
- Conference material & presence delivered for Spatial@gov
- Communication plan implemented and clearly understood by key stakeholders

6.3.5 Output Delivery Date:

- Q1 Conduct ICSM/PCTI secretariat support
- Q2 Contribution to GA's conference material, presentations, and presence for Spatial@gov
Conduct ICSM secretariat support
- Q3 Develop project schedule agreements for information sharing in collaboration with relevant ICSM participating jurisdictions
- Q4 Conduct ICSM secretariat support
Coordinate business planning documentation for Group in consultation with stakeholders

NATURAL RESOURCES INFORMATION

Project Description: The Natural Resources Information Project provides a focal point for liaison with key government bodies and industry stakeholder groups on the prioritisation, coordination and implementation of several key national spatial data infrastructure initiatives, with a particular focus on natural resources information. These include implementation of the National Elevation Data Framework, and the Australian Hydrological Geospatial Fabric (Geofabric), the latter in collaboration with the Bureau of Meteorology, CSIRO, ANU and state jurisdictions. The Project also provides strategic advice and technical support to Australian government initiatives relating to climate change, land use, land cover, water, vegetation and remote sensing.

Project Outcome: Government, industry and the community have access to fundamental spatial data and information required to deliver safe, sustainable and prosperous communities.

1. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

2. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

3. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

4. Project Outputs:

6.1 Output 1: Coordination of National Spatial Data Infrastructure Initiatives

6.1.1 Description:

- Provision of technical and secretariat support to the Intergovernmental Committee on Surveying and Mapping (ICSM) Working Groups
- Provision of advice, and development of ‘best practice’ standards and guidelines relating to Spatial Data Infrastructure.
- Liaison with key government bodies and industry stakeholder groups on matters of prioritisation and national coordination of spatial data acquisition and maintenance.
- Participation in Australian government committees associated with the development and maintenance of the Australian Spatial Data Infrastructure.
- Managing and providing access to the Group’s spatial imagery and elevation data holdings, and coordinating the acquisition of imagery and related data on behalf of the Group and GEMD.

6.1.2 Output Type:

Business as Usual

Project

6.1.4 Key Performance Indicators:

- GA is recognised as a leading contributor to the ongoing development, and maintenance of Australia's Spatial Data Infrastructure.
- Timely provision of high quality advice and support for government coordination initiatives
- Delivery of standards and guidelines.

6.1.5 Output Delivery Date:

Q1 Draft ICSM elevation data specifications

Q2 Public release ICSM elevation data specifications

Q3

Q4 Ongoing provision of advice, liaison and contribution to national committees

6.2 Output 2: Australian Hydrological Geospatial Fabric (Geofabric)

6.2.1 Description:

Geoscience Australia is working in partnership with the Bureau of Meteorology (BoM), CSIRO, ANU and State jurisdictions in support of the ongoing development of the Geofabric to meet national, state and regional water accounting and water resource assessment requirements of the Water Act (2007). In 2010-11 Geoscience Australia will:

- Release and support the Geofabric national foundation data products.
- Develop comprehensive documentation and tools for ongoing development and maintenance of the Geofabric products.
- Commence the evolution of the Geofabric from national to regional scales in priority areas.
- Work with state jurisdictions and the BoM to finalise project implementation plans under the BoM Modernisation and Extension fund.

6.2.2 Output Type:

Business as Usual

Project

6.2.4 Key Performance Indicators:

- Completion of project milestones and outputs according the project plan to the satisfaction of the BoM.
- Adoption of the Geofabric products by the BoM and general user community.
- Complete enhancements to evolve the national foundation watercourse and water body datasets from national to regional scales in priority catchment areas including the Murrumbidgee and Namoi.
- Complete and release improved 1 sec DEM-H products over the priority Murrumbidgee and Namoi catchments.
- Finalise project implementation plans under the BoM Modernisation and Extension fund to extend regional Geofabric implementation.

6.2.5 Output Delivery Date:

Q1

Q2 Release of National Geofabric Datasets

Q3

Q4 Completion of regional scale surface hydrology datasets

6.3 Output 3: National Elevation Data Framework (NEDF)

6.3.1 Description: The aim of the National Elevation Data Framework is to optimise investment and access to existing and future data collections and ensure this investment is directed at policy and operational needs at national, state/territory and local levels. The NEDF Strategic Plan (2008-2011) aims to develop improved governance; funding and coordination of data acquisition; technical standards; access arrangement, and industry development: In 2010-11 Geoscience Australia will:

- Facilitate development of ongoing governance arrangements.
- Launch the NEDF-Portal and commence operational use of the Portal as the primary discovery and delivery platform for elevation data across the Commonwealth.
- Work with the Department of Climate Change, Energy and Efficiency, the CRC SI and State jurisdictions on the implementation of Phase-2 of the Urban DEM Project, including major data acquisition, research, and user engagement activities in high priority coastal areas.
- Complete the 3rd National Data Audit and gap analysis to assist with prioritising investment.
- Through ICSM, release Version 2 of the ICSM Elevation Guidelines and NEDF product specifications.
- Release 1 sec, 3 sec and 9 second DEM products derived from the 1 sec SRTM data.

6.3.2 Output Type:

Business as Usual

Project

6.3.4 Key Performance Indicators:

- NEDF data, information, standards and infrastructure is used as the authoritative source of elevation data for Australia.
- Adoption of the NEDF products by government and the general user community.
- Responding to ongoing requests for data in a timely manner.

6.3.5 Output Delivery Date:

Q1 Release of new 1 sec and 3 sec National DEMs

Q2 Public launch of the NEDF Portal and completion of National Data Audit

Q3 Release Version 2 of the NEDF Elevation Data Guidelines

Q4 Release of high resolution DEMs over priority coastal areas. Release version 2

GEOGRAPHIC INFORMATION FOR DEFENCE

1. **Project Description:** Manage the production of geospatial data and map products for Australia and nominated offshore areas on behalf of Department of Defence - Defence Imagery and Geospatial Organisation (DIGO).
2. **Project Outcome:** DIGO and its Defence clients have access to geospatial data and map products that meet their requirements.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Production of mapping data and information for DIGO**
 - 6.1.1 **Description:**
 - Production of 1:10K Topographic maps over urban areas in PNG;
 - Conversions of IGDS 1:50K vector data to GIS;
 - Update geographic information for identified training areas;
 - Multi Geospatial Co-production Program (MGCP).
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators:**
DIGO's confidence in GA's capability to deliver high quality products on time and with in budget is maintained.
 - 6.1.5 **Output Delivery Date:**
Q1
Q2
Q3
Q4 Delivery of PNG 1:10K maps, IGDS conversions and MGCP outputs

Information SERVICES Section

1. Description: GEM Information Services Section (GEMD ISS) aims to enable GEM business areas and data stewards to:

- Efficiently manage and deliver to clients annual work plan outputs
- Sustainably steward the national data collections for which Geoscience Australia is custodian to a 'best practice' standard ensuring reliability, quality and sustainability of support and solutions provided.

GEM IS liaises and collaborates with Corporate Branch, ISB and the other business divisions to deliver IM support as a set of efficient and effective services.

2. Outcomes: GEM IS' 3 year vision is to "build a sustainable team of core skills required to facilitate the delivery of strategic, innovative IM solutions that meet GEM business needs". As such, GEM IS will provide strategic planning, business analysis, program and project management, web content management and expert ICT skill services toward the successful delivery of IM projects within GEM Division. GEM IS will also coordinate divisional input into corporate IM and ICT initiatives and facilitate priorities as identified in the GEMD ICT & IM Strategy.

- To improve the decision making ability of internal and external clients, based on timely information delivered via quality, client-focussed information systems and web pages.
- To enable GEM data stewards to sustainably manage Geoscience Australia's information assets and supporting collection, management, delivery and usage systems.
- To ensure strategic and tactical alignment of GEM business with agency ICT strategy and service provision.

3. Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Aust. exploration investment opportunities ☒
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia ☒
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs ☒
- Quarterly output milestones met ☒
- Project budget met ☒
- This project contributes to agency-level reporting obligations ☒

6. Outputs

6.1 Output 1: GEMD Information Services – BAU Services

6.1.1 Description: To support GEMD business areas and the agency as required to effectively generate and deliver their 2010-11 work plan outputs.

6.1.2 Output Delivery Date

Q1
Q2
Q3
Q4

6.1.3 Output Type

Business as Usual Project

6.1.4 Key Performance Indicators:

- 90% of all BAU tasks are completed within agreed timeframes and applicable agency standards.
- 90% of all GEMD supported information systems are available (> 90%) to meet client needs.
- At least 90% time spent on BAU tasks are logged for performance measurement and reporting purposes.
- Skilled staff are available to meet core service requirements.

6.2 Output 2: GEMD Information Services - Project Services

6.2.1 Description: To supply expertise to business prioritised information system projects within OEMD and across Geoscience Australia.

6.2.2 Output Type

Business as Usual Project

6.2.3 Key Performance Indicators:

- 90% Project milestones achieved within agreed terms, including timeframe and applicable agency standards.
- At least 90% time spent on project tasks are logged for performance measurement and reporting purposes.
- Required skilled expertise allocated to meet project requirements.
- All project implementations will be within defined ICT architecture or successfully achieve modification to ICT architecture.
- All projects will have a clearly defined priority within the division.
- All projects run using corporately agreed project management methodology and fulfil audit requirements.

Petroleum and Marine Division

PMD overview

PMD provides geoscientific and technical advice to government on:

- petroleum resources and their development;
- marine and Antarctic geoscience;
- carbon dioxide (greenhouse gas) capture and geological storage (CCS);
- Australia's offshore boundaries.

This assists government and the community to make appropriate and informed decisions about the use of resources and the management of the environment, including contributing to regional marine planning and management of Australia's oceans and coasts.

PMD also provides pre-competitive data and information to industry to promote Australia's offshore petroleum acreage and hydrocarbon potential. This assists in attracting investment to Australian waters in a very competitive international market for exploration capital.

Two ongoing government initiatives, the Offshore Energy Security Program and the Carbon Capture and Storage – Implementation program, move into their final year of operations.

Key priorities for 2010-11 will be to:

1. Promote the petroleum prospectivity of Australia. In particular, provide scientific and technical support to Government for the 2011 offshore petroleum acreage release which includes the Perth Basin;
2. As part of the Offshore Energy Security Program, complete interpretation of data from south west frontiers of Western Australia to assess hydrocarbon potential, and complete the assessment of the petroleum potential of remote eastern frontier basins;
3. Identify and document regions for geological storage of carbon dioxide, to support climate change adaptation, including offshore acreage release and assessment including working with States/NT to acquire pre competitive data for storage.

This plan captures all of the activities in the Division which includes all outputs delivered by projects.

SOUTHERN FRONTIERS

- 1. Project Description:** The project involves the interpretation and integration of geological and geophysical datasets in the underexplored areas of the deepwater Otway and Sorell basins, and publication of results. It also encompasses margin synthesis studies along Australia's southern continental margin, and the provision of geoscientific advice on the area extending from Bass Strait in the east to offshore Cape Leeuwin in the west.
- 2. Project Outcome:** An improved understanding of the petroleum prospectivity and resource potential of frontier basins along the southern Australian margin, in particular the deepwater Otway and Sorell basins, to underpin promotion of selected areas for petroleum acreage release, as part of the Offshore Energy Security Program and future marine planning.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Advice on southern margin petroleum prospectivity**
 - 6.1.1 Description:** Provision of scientific advice on the petroleum potential of offshore southern Australia to government and industry for acreage release in the Bight, Otway and Sorell basins, promotion of exploration acreage, and resource and environmental planning purposes.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
Advice provided in a timely and accurate fashion
Acceptance of talks at conferences
Industry representatives contact GA with questions regarding the geology of release areas
 - 6.2 Output 2: Deepwater Otway and Sorell basins prospectivity study**
 - 6.2.1 Description:** Reports, papers and presentations documenting an integrated interpretation of seismic, geological and potential field datasets in the deepwater Otway and Sorell basins, to underpin an improved understanding of the petroleum prospectivity of the basins and future acreage release.

6.2.2 Output Type:

Business as Usual

Project

6.2.4 Key Performance Indicators

Results delivered on time and to budget

Publication of peer-reviewed reports and papers

Acceptance of talks at conferences

ACREAGE RELEASE & PROMOTION

1. Project Description: Provide geoscientific and technical support to the Department of Resources, Energy and Tourism for the annual release of the Offshore Petroleum Exploration Areas and to promote the petroleum prospectivity of Australia, as part of the Offshore Energy Security Program.

2. Project Outcome: Broad awareness and acceptance of the technical opportunities of the acreage offered by the Australian Government for petroleum exploration investment.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Acreage Release Product

6.1.1 Description: Plan, scope and compile geological reports and datasets that support the 2011 release of Offshore Petroleum Exploration Areas. Provide prospectivity assessments as part of write-ups

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Meet timeframes as set out in MOU with RET

Write-ups meet agreed peer review process as stipulated in MOU

Follow-up activities generated by product release.

6.2 Output 2: Acreage Release Promotion

6.2.1 Description: Promotion of Australia as an attractive exploration destination both nationally and internationally at petroleum conferences and through planned meetings with petroleum exploration companies.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Agreements reached with companies for overseas visits
Evidence of follow-up by companies visited during NAPE
Visits by companies to GA after official acreage release

6.3 Output 3: Knowledge delivery - Timescales

6.3.1 Description: Refine and document Australian biozonations to improve the correlation of events and biozones within Australia and to the global geologic timescale.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Industry interest and acceptance of ID-TIMS dating project
Industry acceptance of biozonation and stratigraphy charts
Peer reviewed publication(s) in international journal(s)

SOUTH WEST FRONTIERS

1. **Project Description:** The South West Frontiers Project involves basement, basin and petroleum systems studies of the southwest continental margin, from the Naturaliste Plateau in the south to the Exmouth Plateau in the north, as part of the Offshore Energy Security Program. During 2010-2011, the project will focus on developing tectono-stratigraphic, structural and petroleum systems frameworks for the offshore North Perth Basin, defining the regional structural architecture and basement structure, and promoting new exploration opportunities in the offshore North Perth and Southern Carnarvon Basins.

2. **Project Outcome:** An improved understanding of the geology, petroleum prospectivity and resource potential of Australia's southwest margin to maximise opportunities for the discovery of a new oil and gas province; to underpin promotion of selected areas for petroleum exploration via acreage release; to reduce exploration risk through provision of new data and interpretive information; and to assist future marine planning.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Advice on southwest Australian margin prospectivity

6.1.1 **Description:** Provision of geological advice on the petroleum potential of the offshore southwest Australian margin to government and industry to support resource and environmental policy and planning purposes.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Advice sought and used to inform resource and environmental policy development and planning (number of discussions, meetings etc with policy stakeholders)
Stakeholder initiated contacts/visits to GA to seek information, data.

6.2 Output 2: Mentelle Basin geology and prospectivity

6.2.1 Description: Provision to the petroleum exploration industry of information on the geology and prospectivity of the Mentelle Basin to support the 2010 release of exploration acreage.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Reports available on schedule to peer review standard and accepted by conferences, journals for publication.

Companies request and use Mentelle Acreage Release documentation to inform their decision to bid/not bid (number of Industry requests for info and data package).

Stakeholder initiated contacts/visits to GA to seek information, data.

6.3 Output 3: Wallaby Plateau geology and tectonic history

6.3.1 Description: Reports, presentations and provision of information on the geology and tectonic history of the Wallaby Plateau to better understand the resource potential of this portion of the Extended Continental Margin.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Reports available on schedule to peer review standard and accepted by conferences, journals for publication.

Companies use new data, information and concepts to inform their assessment of the prospectivity of the Wallaby Plateau.

Stakeholder initiated contacts/visits to GA to seek information, data.

6.4 Output 4: North Perth Basin geology and petroleum prospectivity

6.4.1 Description: Reports, maps, charts, presentations and provision of information on the geology and petroleum prospectivity of the offshore North Perth Basin to support acreage release of selected areas in 2011.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Reports available on schedule to peer review standard and accepted by conferences, journals for publication.

Companies request and use North Perth Basin Release documentation to inform their decision to bid/not bid (number of Industry requests for info and data package).

Stakeholder initiated contacts/visits to GA to seek information, data.

6.5 Output 5: Southern Carnarvon Basin geology and prospectivity

6.5.1 Description: Reports, presentations and provision of information on the geology and petroleum prospectivity of the offshore Southern Carnarvon Basin to support acreage release in 2011.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

Reports available on schedule to peer review standard and accepted by conferences, journals for publication.

Companies request and use Southern Carnarvon Release documentation to inform their decision to bid/not bid (number of Industry requests for info and data package)

Stakeholder initiated contacts/visits to GA to seek information, data.

6.6 Output 6: Regional Structure of the southwest Australian margin

6.6.1 Description: Analysis and a map of the structural architecture and basement structure of the southwest Australian continental margin to enhance understanding of the tectonic evolution and petroleum potential of the region.

6.6.2 Output Type:

Business as Usual Project

6.6.4 Key Performance Indicators

Reports available on schedule to peer review standard and accepted by conferences, journals for publication.

Map incorporated into acreage release documentation for the North Perth and Southern Carnarvon Basins.

Stakeholder initiated contacts/visits to GA to seek information, data.

REMOTE EASTERN FRONTIERS

6. Project Description: Regional-scale geological and petroleum prospectivity assessment of the Capel and Faust basins as part of the Offshore Energy Security Program. The project is in the final stages of documenting the results of a four year study which encompassed the acquisition, analysis, interpretation and synthesis of data on basin stratigraphy, structure and potential petroleum systems.

7. Project Outcome: Finalise delivery of pre-competitive data and information to stakeholders to reduce geologic uncertainty in petroleum exploration and inform the Marine Bioregional Planning process.

8. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

9. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

10. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

11. Project Outputs:

6.1 Output 1: Remote Eastern Frontiers prospectivity promotion and advice.

6.1.1 Description: Finalise documentation of the key outputs of the Remote Eastern Frontiers project in peer-reviewed journal papers and GA Records. Promote exploration opportunities to the petroleum industry and other key stakeholders through meetings, workshops and conference presentations. Formulate recommendations on possible future work in the Remote Eastern Frontiers region, including the Capel, Faust, Gower, Moore and Monowai basins, and identify collaborative opportunities with regional partners.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Acceptance of peer-reviewed papers and delivery of presentations at international and Australasian petroleum exploration industry conferences (e.g. American Association of Petroleum Geologists, APPEA, New Zealand Petroleum).
Successful internal review and publication of GA Records.
Information and product requests from industry received and delivered.

WELLS TASKFORCE

- 1. Project Description:** The objective of the Wells Taskforce is to upgrade the ICT and business systems that provide data on petroleum and stratigraphic wells so that GA can continue to provide relevant, accurate information to the minerals, petroleum, and energy sectors to enhance national wealth and energy security.
- 2. Project Outcome:** The desired outcomes of the Wells Taskforce are improved discoverability of Wells data and enhanced quality of data provided. The Wells Taskforce will also result in reduced time and effort to assemble datasets for Acreage Release and improved confidence in the security of commercially sensitive data. Internally, the Taskforce will streamline the management and transfer of data within GA, reduce operating overheads and improve the Business Continuity of Wells data.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Stratigraphic Wells application**
 - 6.1.1 Description:** Develop requirements, design, build, test and enter system into service to manage a Single Point Of Truth dataset on Stratigraphic Wells
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
System is operational for use in Acreage Release 2011
Arrangements are in place to support the system in service
The application meets the required functional and performance requirements
 - 6.2 Output 2: SHOWS application**
 - 6.2.1 Description:** Develop requirements, design, build, test, migrate data and enter system into service to manage a Single Point Of Truth dataset on exploration test data.
 - 6.2.2 Output Type:**
Business as Usual Project

6.2.4 Key Performance Indicators

System is operational for use in Acreage Release 2011
Arrangements are in place to support the system in service
system meets minimum Performance criteria (non functionals)

6.3 Output 3: Provinces Application

6.3.1 Description: Develop requirements, design, build, test, migrate data and enter system into service to manage a Single Point Of Truth dataset on geological features of the Australian continent and surrounds.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Arrangements are in place to support the system in service
System meets minimum Performance criteria (non functionals)
System meets Mandatory functional requirements

6.4 Output 4: National Wells Register

6.4.1 Description: Develop requirements, design and build prototype for a National Wells Register

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Requirements are formally signed off by key stakeholders
Benefits for the system are identified and documented
A functioning prototype is demonstrated to key stakeholders

6.5 Output 5: Wells Header Single Point Of Truth Architecture Solution

6.5.1 Description: A solution to support a federated architecture is put in place for Holes Single Point Of Truth.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

A federated architecture is signed off by key stakeholders
Wells Header data sits independently of Petroleum wells system
Wells Header data is able to be accessed by other dataset solutions

PETROLEUM & GREENHOUSE GAS TECHNICAL ADVICE PROGRAM

- 1. Project Description:** Provide technical advice to the Department of Resources, Energy and Tourism (RET) Resources Division relevant to the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGSA) and its associated Regulations and Guidelines with respect to:
 - Petroleum exploration, environment and marine matters,
 - Petroleum developments,
 - Petroleum resource management and production, and associated safety matters,
 - Carbon dioxide capture and geological storage.
- 2. Project Outcome:** Enhanced resource management of Australia's petroleum resources for the benefit of the community and technical advice for the development of the regulatory regime for the geological storage of carbon dioxide in the offshore.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Exploration and Environment Advice**
 - 6.1.1 Description:** Provide relevant and timely technical advice to RET on petroleum exploration activities and environmental matters for the purposes of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
Provide relevant and accurate advice to RET within the agreed timeframe.
 - 6.2 Output 2: Petroleum Engineering and Resource Management Advice**
 - 6.2.1 Description:** Provide relevant and timely technical advice to RET on petroleum engineering issues and petroleum resources issues for the purposes of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. Also provide relevant and timely advice in association with RET for the purposes of the *Excise Tariff Act 1921*, the *Petroleum Resource Rent Tax Assessment Act 1987*, and the *Trade Practices Act 1974*. Provide relevant and timely

technical advice for activities in the Timor Sea Joint Petroleum Development Area. Provide advice and support as required to the annual offshore Petroleum Acreage Release process.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Provide relevant and accurate advice to RET and other stakeholders within the agreed timeframe.

6.3 Output 3: Greenhouse Gas Advice

6.3.1 Description: Provide relevant and timely advice to RET and other government agencies on greenhouse gas storage issues for the purpose of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Provide relevant and accurate advice to RET and other stakeholders within the agreed timeframe

6.4 Output 4: Petroleum Resource Assessment

6.4.1 Description: Provide assessments of Australia's discovered and undiscovered petroleum resources, including conventional and unconventional petroleum resources, and also provide forecasts of production from both discovered and undiscovered resources.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Deliver updated production forecast by end December 2010.

6.5 Output 5: Provision of petroleum statistical information and analysis

6.5.1 Description: Provide relevant statistics on Australia's petroleum exploration activities, identified petroleum resources, petroleum developments, petroleum production and resources self-sufficiency primarily through the release of *Oil and Gas Resources of Australia 2009*.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

Respond to enquiries in a timely and accurate manner.

Deliver *Oil and Gas Resources of Australia 2009* by end December 2010.

GREENHOUSE GAS STORAGE (CO2CRC)

1. **Project Description:** Specialised input by Geoscience Australia staff into projects of the Cooperative Research Centre for Greenhouse Gas Technologies (CO2CRC).
2. **Project Outcome:** Publication of relevant research into various aspects of the geological storage of carbon dioxide that will enable the robust development of the Greenhouse Gas (GHG) Storage Industry and government regulation.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: CO2CRC Otway Project Geochemistry**
 - 6.1.1 **Description:** Ongoing provision of specialist organic and water geochemistry expertise to the CO2CRC Otway Project.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators**
Undertake sampling and analysis at regular intervals as requested by the CO2CRC
 - 6.2 **Output 2: Geomechanical Studies**
 - 6.2.1 **Description:** Geomechanical studies including:
 - Modelling the geomechanical response of CO2 injection into the Paaratte Formation at the Otway Basin Project,
 - Studies aimed at understanding seal geomechanics and the potential for CO2 leakage;
 - Response of reservoir and seal to underground gas storage, injection and production.
 - 6.2.2 **Output Type:**
Business as Usual Project
 - 6.2.4 **Key Performance Indicators**
Produce reports and present results on geomechanical studies as agreed with the Storage Program Manager, CO2CRC

GREENHOUSE GAS STORAGE

- 1. Project Description:** Continue to develop a greenhouse gas (CO₂) storage program including acreage release packages as required. Develop independent in-house expertise in the evaluation of sedimentary basins (offshore and onshore) for geological storage to aid in the formulation of advice both on acreage release and applications for greenhouse gas titles under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. In conjunction with the State and Territory surveys assist in the development and acquisition of pre-competitive exploration programs.
- 2. Project Outcome:** Development of a robust Greenhouse Gas (GHG) Acreage Release and Injection Licence approval processes in conjunction with RET and the State and Territory governments. Provision of targeted expertise to assist States and Territories with the development of specific GHG programs.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Greenhouse Gas Acreage Release and Advice**
 - 6.1.1 Description:** Select suitable areas in selected basins for release and prepare geoscientific data packages on request from RET.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
Meet RET requirements within agreed timeframes.
 - 6.2 Output 2: Reservoir Modelling**
 - 6.2.1 Description:** Develop reservoir models on the Caswell Fan in the Browse Basin and Gippsland Basin; the latter in collaboration with GeoScience Victoria.
 - 6.2.2 Output Type:**
Business as Usual Project

6.2.4 Key Performance Indicators

Completion of reservoir studies model/report on Caswell fan by December 2010.
Completion of reservoir studies/model on Gippsland Basin Study Area by June 2011.

6.3 Output 3: Deliver Pre-competitive GHG Data

6.3.1 Description: Work with States and Territories through National Geoscience Agreements to deliver pre-competitive geoscientific data for GHG storage assessment of selected areas.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Successful implementation of pre-competitive programs through National Geoscience Agreements.

6.4 Output 4: Geological characterisation of reservoirs and seals

6.4.1 Description: Support the deployment and implementation of GHG storage by acquiring and interpreting relevant data to characterise reservoirs and seals in selected areas for GHG storage.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Completion of Bass Basin seal integrity study by December 2010
The results of the characterisation activities in the Gippsland and Petrel Sub-basin are used to support reservoir modelling and the identification of suitable GHG storage sites.

6.5 Output 5: Geochemical impact of carbon storage

6.5.1 Description: In collaboration with external organisations develop in-house expertise to predict the impacts by CO₂ injection on fluid flow and water and sediment properties to support the evaluation of the Gippsland Basin as a CO₂ storage site.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

Advice provided in a timely and accurate manner to client's satisfaction

GREENHOUSE GAS MONITORING

- 1. Project Description:** The project involves assessing monitoring and verification techniques for geological storage of greenhouse gases. Baseline data for atmospheric and groundwater greenhouse gas monitoring programs will be determined for selected onshore areas.
- 2. Project Outcome:** Establishment of confidence in baseline atmospheric monitoring as a suitable technology to assist in verification of suitable geological storage sites for carbon dioxide. Also assist with the development of leak detection technologies through the establishment of an equipment testing site.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Baseline greenhouse gas monitoring in a potential storage basin**
 - 6.1.1 Description:** A joint GA-CSIRO facility for the monitoring of greenhouse gases in a potential storage basin will be operational during 2010/2011. The primary objective is to field test new greenhouse gas monitoring technologies and provide a world-class reference site for later infill monitoring programs.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
Service levels under National Collaboration Framework for the Baseline Atmospheric Monitoring Project met
Obtain a continuous baseline dataset of atmospheric greenhouse gas concentrations in a high priority storage region over a 12 month period
Demonstrate best practice for baseline monitoring of greenhouse gases in the atmosphere
 - 6.2 Output 2: Regional groundwater maps for a potential storage basin**
 - 6.2.1 Description:** Under a National Geoscience Agreement with the Geological Survey of Queensland, Geoscience Australia is developing regional groundwater maps for a potential

storage basin. Groundwater surveys will also be undertaken in strategic areas to assess the impact that high levels of naturally occurring CO₂ has on groundwater.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Three groundwater surveys completed by June 2011

Hydrochemistry of each major aquifer in a potential storage basin mapped by June 2011

Output 3: Field surveys at the controlled release facility

6.3.1 Description: A controlled release facility will be commissioned during 2010/2011 and field trials will be conducted with partners to evaluate greenhouse gas detection and quantification techniques and technologies.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Controlled release facility commissioned by December 2010

First major release completed by June 2011

Minimum of 4 collaborator organisations partake in release experiment during 2010/2011

Output 4: Evaluation of sensors for greenhouse gas detection in marine environments

6.4.1 Description: Building on a review of ocean monitoring techniques for greenhouse gases, the project will investigate the use of state-of-the-art sensors for the detection of greenhouse gases from natural analogue sites with a view to conducting ocean trials in 2010/2011.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Sensors for detection of greenhouse gases in marine environments tested and ready for deployment in 2011/2012 through collaborating partners

INTERNATIONAL CARBON CAPTURE & STORAGE

1. **Project Description:** The project provides technical and advisory support for Carbon dioxide Capture and geological Storage (CCS) at an international level. It is engaged in the development of collaborative activities with the Global CCS Institute, the Carbon Sequestration Leadership Forum (CSLF), International Energy Agency Greenhouse Gas R&D Programme, and through specific country to country activities, such as the Asia-Pacific Partnership on Clean Development and Climate (APP).
2. **Project Outcome:** Outcomes of this project include active Australian Government engagement in international CCS activities, leading to improved economic and environmental outcomes and enhanced capabilities through international collaboration.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Support for RET engagement in international forums.**
 - 6.1.1 **Description:** Provide support, advice and services to Greenhouse Gas (GHG) team, GHG team leader, Group Leader and Chief of Division. Provide information and advice to RET as requested and engage with CCS teams at RET for greater coordination and cooperation.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators**
Provide advice in timely manner
Client satisfaction
Enhance GA's international CCS networks and relationships
 - 6.2 **Output 2: Carbon Sequestration Leadership Forum (CSLF)**
 - 6.2.1 **Description:** Support the Chief of Division in his role as Vice-Chair of the CSLF Technical Group and Chair of the Projects Interaction and Review Team, as well as CSLF activities including attendance at meetings and organisation / hosting of meetings as appropriate.
 - 6.2.2 **Output Type:**

Business as Usual Project

6.2.4 Key Performance Indicators

Meets requirements of COD in role as Technical Group Vice Chair and PIRT Chair
Positive feedback received from RET for provision of support as part of Australian Government contribution to CSLF

6.3 Output 3: China Australia Geological Storage of CO2 Project

6.3.1 Description: Leadership and management of a collaborative project with the Chinese Government agencies (China Australia Geological Storage of CO2 Project - CAGS) to build capacity in China and Australia in the area of geological storage of carbon dioxide, and to facilitate China's own assessment of prospectivity for geological storage of CO2. The project is supported through the Asia Pacific Partnership on Clean Development and Climate and the Department of Resources, Energy and Tourism (RET). The primary Chinese partner is the Administrative Centre for China's Agenda 21 (ACCA21) at the Ministry of Science and Technology.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Meet milestones and criteria set out in GA-RET MOU
Meet milestones and criteria set out in GA-ACCA21 contract, and for each project activity as agreed with ACCA21
Complete project activities by December 2011

6.4 Output 4: CCS Outreach

6.4.1 Description: Development of outreach and educational materials on CCS in the context of Geoscience Australia's role as the national geoscientific agency and as a source of objective, technical information for the public.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Provide accurate, objective information about CCS and geological storage to the public through a variety of media

LAW OF THE SEA AND MARITIME BOUNDARIES ADVICE

1. **Project Description:** The LOSAMBA project undertakes the technical work to define Australia's national maritime boundaries, and provides advice on the definition of administrative boundaries within the Australian maritime jurisdiction and on geoscientific aspects of the Law of the Sea where appropriate.
2. **Project Outcome:** Improved management and administration of Australia's coastal and marine jurisdiction via provision of reliable and accurate information and advice.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Maritime Boundaries Advice and data maintenance.**
 - 6.1.1 **Description:** Determination of Australia's national boundaries under the UN Convention on the Law of the Sea, the Seas and Submerged Lands Act and the Coastal Waters State Powers and Title Acts. Provision of ad hoc advice, including the provision of maps, written boundary descriptions and digital data used in national boundary definition, geoscientific aspects of UNCLOS, and national and administrative maritime boundaries. Included in this output is the maintenance of the Australian Maritime Boundaries data.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators**
Australia's national boundaries baselines and associated data, outer limits and database include new data derived from remote sense images
Advice is requested by Government on National Boundaries including the production of cartographic materials
New staff recruited in 2010 provide advice within GA on Administrative Boundaries.

6.2 Output 2: Activities associated with role of UNCLC Commissioner

6.2.1 Description: Participation by Commissioner Symonds in the deliberations of the UN Commission on the Limits of the Continental Shelf (UNCLC).

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Attendance at sessions of the Commission on the Limits of the Continental Shelf and intersessional meetings as required by the business of the Commission

6.3 Output 3: Management of Australian Marine Spatial Information System (AMSIS)

6.3.1 Description: Ongoing administration and enhancement of the Australian Marine Spatial Information System including to its underlying support systems

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Maintain data currency of administrative layers of AMSIS to 6 months or better
Collaborate with NMG in the migration of AMSIS and MapConnect into ArcGIS server (NMG to lead)

6.4 Output 4: Advice to Pacific Island and other States on maritime boundaries

6.4.1 Description: Advice to be given to Pacific Island and other States, in cooperation with other Australian Government partners, regional organisations and international organisations to assist in the definition and finalisation of their maritime boundaries including the continental shelf limits.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

The organisation of a two week Pacific Boundaries working session in November 2010
Host delegations from countries to discuss continental shelf and other boundary issues at the request of DFAT

FIELD AND ENGINEERING SUPPORT

- 1. Project Description:** Field and Engineering Support services include supplying a wide variety of sampling, geophysical, mapping and geochemical equipment to marine survey operations and the skilled personnel to operate and maintain the equipment and provide logistics support. FES also designs and develops marine geoscience equipment for new survey applications as well as supplying miscellaneous survey and engineering services to other Geoscience Australia Divisions (GEMD, OEMD, Corporate) and external agencies and organizations.
- 2. Project Outcome:** The Field and Engineering Support project provides services which allow Geoscience Australia's scientists to undertake marine geoscience and oceanographic research in the field and laboratory and thus complete environmental management and resource assessment tasks. The services allow clients to conduct marine field surveys and laboratory research work with access to well-maintained (mainly state-of-the-art), fully-functional equipment. Data sets and samples are collected to the highest standards allowing the marine program to successfully meet its goals. Support provided to non-marine and external geoscience projects and organizations allow them also to undertake research, mapping, education and other core geoscience activities.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Marine survey and miscellaneous science services**
 - 6.1.1 Description:** Marine and other survey support including planning operations, providing expert staff, logistical support and specialized equipment in the field (PMD and GA collaborative projects).
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
Support for AIMS MOU and RV Solander - Client satisfaction and survey running to schedule

Miscellaneous survey support - Client satisfaction and quality data delivered to GADA and database administrators

Planning, research and advice to internal/external clients e.g. MNF FRV - Timely impact resulting in high quality projects / vessel.

6.2 Output 2: PMD Engineering design and development and equipment maintenance

6.2.1 Description: Includes construction of several portable / containerized systems for CO₂ monitoring, downhole CCS experiments and CO₂ injection and detection, marine camera system development, sub bottom profiler maintenance, coring system and geochem/geophysics support for the RV Solander / AIMS MOU survey

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Maintenance of marine survey equipment - Client satisfaction, equipment provided and survey objectives met

Construction and installation of various CCS projects - Client satisfaction and stations working on time

Ongoing development of equipment - Client satisfaction and survey needs met

6.3 Output 3: Engineering and survey services to other GA Divisions and external clients

6.3.1 Description: Includes construction of containerised equipment for the GEMD Cocos Is Infrasound station, NW seismometer array for GEMD tsunami detection, installation of SA seismometers, continuing services to groundwater, laboratory support, SHRIMP and OEMD thermal energy support as required

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Infrasound Project (GEMD) - Client satisfaction / all engineering items constructed, assembled and shipped

NW seismometer array (GEMD) - Client satisfaction and array components supplied and installed

SA tsunami seismometers (GEMD) - Client satisfaction, components supplied, shipped and installed

CERF MARINE BIODIVERSITY HUB

1. Project Description: The project will analyse existing and new marine datasets to characterize and predict seabed biodiversity at specific study sites, as well as provide new data, information and tools to support the identification, assessment, conservation and sustainable use of Australia's marine assets. The project will encompass the existing Marine Hub program (Hub1, June - December 2010), Transitional activities (June - Dec 2010) funded by DEWHA, and the development and initiation of Hub2, starting January 2011.

2. Project Outcome: More effective conservation of Australia's marine biodiversity through the increased availability and use of biodiversity data and information in the science and management of Australia's marine environment.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: The utility of marine physical environmental parameters as surrogates of benthic biodiversity (Hub1 output)

6.1.1 Description: A report on the results of second phase of analysis of co-variance between physical and biological variables that have been measured at field survey areas on the Lord Howe Island shelf, SE Tasmanian Shelf, Carnarvon Shelf and Jervis Bay.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Report is accepted by DEWHA/Hub and milestone payment is received.
Positive feedback from Marine Division in DEWHA.

6.2 Output 2: Graphical communication products (Hub1 Output)

6.2.1 Description: Development of a video that highlights the key outputs of GA's Hub work, which incorporates field data (multibeam sonar bathymetry, underwater still images and video footage) and spatial models of seabed properties.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Video product is taken up by the media, key stakeholders (DEWHA) and Hub partners

6.3 Output 3: Database of sponge operational taxonomic units for northern Australia

6.3.1 Description: The matching of sponge species putative names between sponge collections from northern Australia held by GA, AIMS, and Museums of Western Australia, Queensland and Northern Territory. (Transition output)

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

GA sponge samples are included in the new national dataset.

6.4 Output 4: Marine Hub2 Program workplan (Hub2 output)

6.4.1 Description: Development of a detailed research workplan for the Hub2 program led by Geoscience Australia.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

GA involvement is aligned with government/RET strategic priorities
Contract signed with Hub partners for CERF2

SEABED MAPPING AND COASTAL MANAGEMENT

- 1. Project Description:** The Seabed Mapping and Coastal Management (SMACM) project coordinates the delivery of technical advice on the management of Australia's offshore living and non-living resources in support of the Offshore Energy Security Program. This involves: providing advice on offshore resources including preparing seabed environmental summaries for future acreage release areas; conducting seabed mapping surveys in areas of planned offshore infrastructure development; maintaining fundamental national geoscience datasets for the seabed; developing and undertaking scientific research in the use of abiotic variables to predict potential marine biodiversity and habitat distributions, and providing scientific support for the development of web-based information systems to deliver high-quality data and scientific products to government and the public. Key stakeholders are Australia's offshore resource industry, the Department of Resources, Energy and Tourism, Commonwealth and State environmental management agencies, and the Australian public.
- 2. Project Outcome:** A raised awareness of the use of geoscience information and research in drafting marine policy by the Australian Government and in environmental regulation by Australia's offshore resource industry. Emplacement of geoscience data and advice in the Australian Government's decision-making processes for offshore resource development and marine environmental management.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Sorrel Basin Environmental Summary in support of future acreage release**
 - 6.1.1 Description:** This output involves drafting a report and associated GIS for the Department of Resources, Energy and Tourism summarising and synthesising environmental geoscience information for an offshore basin that will be released for petroleum acreage. This output is a deliverable of the Offshore Energy Security Program. The report will be written collaboratively with Petroleum Prospectivity and Promotion staff, tailored to the Department's requirements, and delivered in support of acreage release products. Information synthesised in the report is designed to provide technical advice to the Department on the seabed geoscience components of the acreage release areas. Information

to be summarised include seabed geomorphology, sedimentology, oceanography, and benthic habitats.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Requests for copies of report and/or further information received from stakeholders

6.2 Output 2: Seabed mapping survey to Joseph Bonaparte Gulf and post-survey reports

6.2.1 Description: The planning, execution and write up of a seabed mapping survey to the Joseph Bonaparte Gulf as part of the Memorandum of Understanding with the Australian Institute of Marine Science (AIMS). The survey will use the AIMS vessel RV Solander to collect baseline geological and geophysical data for the seabed to support proposed infrastructure development by Australia's offshore petroleum companies in the region. Data collected will be shallow-water multibeam sonar (bathymetry and backscatter) using Geoscience Australia's multibeam system, sub-bottom profiler, seabed stability from oceanographic moorings, and physical samples. Reports detailing the seabed environments and potential geohazards will be written incorporating industry-collected environmental data, data from the survey, and data from Geoscience Australia's existing holdings. This output will support Australia's offshore upstream petroleum industry in regards to environmental regulation.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Industry data are incorporated into post-survey report

Survey completed successfully

Requests for copies of post-survey report received from stakeholders

6.3 Output 3: Development of OzCoasts website and MARS database

6.3.1 Description: The ongoing developing and maintenance of Australia's national coastal and marine geoscience web sites as fundamental national information systems. Activities include: addition and QC of new data collected by output 2 and from external sources (e.g., industry, universities, marine national facility); development of the field (shipboard) database for MARS; scoping of future content for OzCoasts in collaboration with stakeholders (e.g. spatial beach search module); and development of a standardised database vocabulary to support interoperability.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Increased usage of both web sites by stakeholders

Interest expressed to include a new component(s) in OzCoasts by stakeholders

6.4 Output 4: Provision of Scientific and Technical Advice

6.4.1 Description: The ongoing delivery of advice to the Australian Government on: 1) development of a seabed mining policy, 2) the capabilities of Australia's future research vessel as membership of the Technical Advisory Group, 3) establishment of processes and standards to guide the collation of environmental data acquired by Australia's offshore upstream petroleum industry (providing data for output 2), and 4) on the naming of under-sea feature as marine representative on the Committee for Geographical Names of Australia.

Advice will primarily be in the form of briefs to the relevant Australian Government departments and agencies.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Geoscience information considered in formulating government policy on seabed mining
New vessel includes geoscience capabilities
Seabed features of interest to GA are included in Australian gazetteer

6.5 Output 5: Co-ordination of the National Estuary Network

6.5.1 Description: The ongoing co-ordination and facilitation of the national estuaries network meetings for 2010-11. This output continues Geoscience Australia's role in facilitating this meeting of state estuary managers. Major outcomes include co-ordination of state activities in estuary and coastal management and the inclusion of the Australian Government's advice and agendas in national estuary management.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

NEN Meetings are held and well attended.
Environmental issues of national concern are tabled at the meetings

ANTARCTIC GEOSCIENCE

1. **Project Description:** Provide advice to government on geoscience issues in the Australian Antarctic Territory, provide data and research to support government goals for Antarctic science and for management of the Australian Antarctic Territory
2. **Project Outcome:** Advice on Antarctic Geoscience available for DEWHA, RET and DFAT. Science outputs to support Australian management of the Australian Antarctic Territory and enhance Australia's credibility in Antarctic affairs. Science outputs to support the Australian Government's goals for Antarctic Science: Maintain the Antarctic treaty and enhance Australia's influence within the ATS; Protect the Antarctic environment; and improve our understanding of the role of Antarctica in the global climate system.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Geoscience for understanding and managing Antarctic benthic ecosystems**
 - 6.1.1 **Description:** Project undertakes seabed mapping and characterisation to help understand marine benthic ecosystems and habitats in the Antarctic. The project provides advice and products to support AAD in CCAMLR and a multibeam-based sea floor mapping project along the coast of the Vestfold Hills and offshore Casey station. Assist AAD in developing methods to assess the impact of sewage treatment systems at Australia's Antarctic stations.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators**
Post-survey report for Davis multibeam mapping is published and used by AAD in decision-making and analysis
Australia's input to SCAR action group "Seeps and vents Antarctica" (SAVANT) informs vulnerable marine ecosystem identification in the Antarctic.
Provide geoscience and technical support for a survey in Dec-Jan to assess the impact of large icebergs on Vulnerable Marine Ecosystems on the George V Land shelf.

New bathymetry grid of the Heard Island to Prydz Bay region delivered for use in Marine Protected Area design.

6.2 Output 2: Geoscience Program Leadership

6.2.1 Description: Provide advice to government departments engaged in management of the Australian Antarctic Territory and represent Australia on international Antarctic geoscience bodies.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Proposals for ANARE program are reviewed and successfully supported through ASAC
A strategy for delivery of strategically important geoscience maps and related products for the AAT is developed and the first map produced

6.3 Output 3: Amery Ice Shelf history and processes

6.3.1 Description: Conduct research on sediment cores and geophysical data from the Amery Ice Shelf to complement AAD studies on the state of the Amery Ice Shelf and its response to environmental change.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Landward limits of oceanic influences are determined, informing understanding of the response of the ice-shelf to environmental change

SURVEYS TASKFORCE

1. Project Description: The aim of Surveys Taskforce is to produce a complete and consistent catalogue (metadata and navigation data) and then an inventory of all marine surveys. It is also proposed to rationalise the databases used in the management of Survey data.

2. Project Outcome: Improved quality and storage of survey information which will result in greater access to survey data and metadata. .

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Marine Surveys

6.1.1 Description: Produce both a catalogue and inventory of marine surveys data and information. This work will focus on improving the quality of Survey metadata.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

Complete the collection and QC of the catalogue, metadata, and navigation data for all marine seismic surveys

Complete the collection and QC of the catalogue, metadata, and navigation data for all marine scientific surveys

6.2 Output 2: Database information and data model

6.2.1 Description: Produce both an information and data model for all marine surveys. This work will lead to the development and deployment of a Surveys database and data management application.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Complete the information model

Complete the data model
Build a database and application for the management of survey data.

GEOSCIENCE AUSTRALIA LABORATORIES – LEVEL 3

- 1. Project Description:** The Geoscience Australia Laboratories provide specialist laboratory services in inorganic and organic geochemistry, palaeontological, sedimentological and water analyses to support projects and divisions within Geoscience Australia, as well as externally funded collaborative projects
- 2. Project Outcome:** Delivery of timely, high quality inorganic, organic, palaeontological, sedimentological and water chemistry analyses datasets to assist in improving geoscience knowledge in Geoscience Australia and external hydrocarbon, mineral, water and hazard projects.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Organic Geochemistry Laboratory Services**
 - 6.1.1 Description:** Through the provision of cost effective specialist laboratory services, the Organic Geochemistry Laboratory provides high throughput sample preparation and high-quality petroleum and bio-geochemical analyses services in a timely manner to support and meet project objectives.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
 - Delivery of laboratory analysis results in full into relevant database and within agreed timeframe
 - Agreed acceptable turnaround time for each analysis
 - Laboratory analysis results meet agreed quality measure for that analysis
 - GA Laboratory receives ongoing positive project feedback
 - GA Laboratory budget monitored and met
 - GA Laboratory demonstrates adherence to the GA Laboratories Standard Operating Procedures (SOP's) and GA's OH&S policies
 - GA Laboratory staff regularly trained in relevant laboratory techniques

6.2 Output 2: Palaeontology and Sedimentology Laboratory Services

6.2.1 Description: Through the provision of cost effective specialist laboratory services, the Palaeontology and Sedimentology Laboratory provides high-throughput sample preparation and high-quality sedimentological and palaeontological analyses and imaging services in a timely manner to support and meet project objectives and outcomes.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Delivery of laboratory analysis results in full into relevant database and within agreed timeframe

Agreed acceptable turnaround time for each analysis

Laboratory analysis results meet agreed quality measure for that analysis

GA Laboratory receives ongoing positive project feedback

GA Laboratory budget monitored and met

GA Laboratory demonstrates adherence to the GA Laboratories Standard Operating Procedures (SOPs) and GA's OH&S policies

6.3 Output 3: Inorganic Geochemistry Laboratory Services

6.3.1 Description: Through the provision of cost effective specialist laboratory services, the Inorganic Geochemistry Laboratory provides high-throughput sample preparation and high-quality geochemical analyses by X-Ray Fluorescence, Inductively Coupled Plasma- Mass Spectrometry, Laser Ablation, wet-chemistry and other techniques and mineralogical determinations by X-Ray Diffraction analysis, for submitted rock and mineral samples.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Delivery of laboratory analysis results in full into relevant database and within agreed timeframe

Agreed acceptable turnaround time for each analysis

Laboratory analysis results meet agreed quality measure for that analysis

GA Laboratory receives ongoing positive project feedback

GA Laboratory budget monitored and met

GA Laboratory demonstrates adherence to the GA Laboratories Standard Operating Procedures (SOPs) and GA's OH&S policies

6.4 Output 4: Water Chemistry Laboratory Services

6.4.1 Description: Through the provision of cost effective specialist laboratory services, the Water Chemistry Laboratory provides high-throughput sample preparation and high-quality analyses of water samples by Ion Chromatography, ICP-OES, pH, Electrical Conductivity and other techniques.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

Delivery of laboratory analysis results in full into relevant database and within agreed timeframe

Agreed acceptable turnaround time for each analysis

Laboratory analysis results meet agreed quality measure for that analysis

GA Laboratory receives ongoing positive project feedback

GA Laboratory budget monitored and met

GA Laboratory demonstrates adherence to the GA Laboratories Standard Operating Procedures (SOPs) and GA's OH&S policies

6.5 Output 5: Development of a geochemical data management system

6.5.1 Description: Undertake development and implementation of geochemical data management systems to enhance geochemistry dataflow processes that will automate transfer of analyses results from instruments directly into GA databases as well as providing a flexible and adaptable management system for storage of geochemistry analytical data.

6.5.2 Output Type:

Business as Usual Project

6.5.4 Key Performance Indicators

Agreed acceptable turnaround time for development

Information system development receives ongoing positive project feedback

6.6 Output 6: Development of a laser ablation – ICPMS analytical capability in the Inorganic Geochemistry Laboratory

6.6.1 Description: Development and commissioning of a laser ablation – ICPMS capability in the Inorganic Geochemistry Laboratory for the chemical and isotopic analysis of grains, minerals and other solid materials.

6.6.2 Output Type:

Business as Usual Project

6.6.4 Key Performance Indicators

Laser ablation- ICPMS facility operational by 31 December 2010

GA Laboratory staff trained in the operation of the Laser ablation- ICPMS facility

GA Laboratory demonstrates adherence to the GA Laboratories Standard Operating Procedures (SOP's) and GA's OH&S policies

INFORMATION, DEVELOPMENT AND ANALYSIS SERVICES

1. Project Description: To enable business areas and data stewards to efficiently manage and deliver to clients annual workplan outputs to support the stewardship of the national data collections. To provide 'best practice' standards ensuring reliability, quality and sustainability of support and solutions provided. To liaise and collaborate with Corporate Branch, ISB and all divisions to deliver these services effectively and efficiently.

2. Project Outcome: To support PMD business with the supply of information resources and services that underpins PMD and GA outputs.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Business As Usual (BAU) Service

6.1.1 Description: To support PMD and the enterprise in BAU activities which include Application Support and Maintenance, Web Content Support and Maintenance, Data Stewardship Support, Advice and Liaison and Geospatial Analysis.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

90% of all tasks requested are completed within agreed timeframes
90% of all PMD systems are available to meet clients needs
To have have skilled staff available to meet core service requirements

6.2 Output 2: Project Services

6.2.1 Description: To supply expertise to business prioritised Information Systems projects within PMD and across the enterprise: Taskforces, OzCoast, WRP, WAM, AODN, CSS etc

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Allocation of required skilled expertise to meet project requirements
All project implementations will be within defined ICT architecture
All projects will have a clearly defined priority within the division

6.3 Output 3: Virtual Data Room

6.3.1 Description: Increase the available data and range of functionality of Virtual Data Room (VDR) at production level. Develop ongoing metrics of business intelligence from VDR use.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

50% of internal data sources consumed in the VDR will be WFS / WMS based & utilise existing community standards.

10% increase per month of data retrieved through VDR

Gain overall positive feedback of VDR functionality from industry

GEOPHYSICAL ANALYSIS AND DATA ACCESS

1. **Project Description:** Provide geophysical products for internal and external clients, including the annual acreage release's seismic workstation package and bathymetry grids. Provide support and development of information management processes and systems, and seismic interpretation platforms within Geoscience Australia.
2. **Project Outcome:** Management and completion of acquisition, processing, delivery, data management and archival of geophysical datasets, including, seismic, potential field, and bathymetry and acoustic datasets for internal and external clients. Analysis of geophysical datasets where required by GA projects. Management and maintenance of GA geophysical data analysis tools including seismic interpretation platforms.
3. **Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
4. **Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
5. **Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
6. **Project Outputs:**
 - 6.1 **Output 1: Acquisition, management, processing, delivery and archival of seismic, bathymetry and potential-field geophysical datasets.**
 - 6.1.1 **Description:** Acquire, manage, process, deliver and archive geophysical, bathymetry and acoustic datasets to meet internal and external project requests.
 - 6.1.2 **Output Type:**
Business as Usual Project
 - 6.1.4 **Key Performance Indicators**
Level of uptake by key stakeholders of bathymetric and geophysical datasets.
Analysis of geophysical datasets enhancing prospectivity of frontier petroleum regions.
Timely delivery of requests for internal and external clients.
 - 6.2 **Output 2: Seismic workstation packages for acreage release.**
 - 6.2.1 **Description:** The creation and production of the acreage release seismic workstation packages.
 - 6.2.2 **Output Type:**
Business as Usual Project

6.2.4 Key Performance Indicators

Timely delivery of quality seismic workstation packages for APPEA each year.
Satisfaction from Industry having received information on the petroleum energy sector enabling uptake of new acreage release.

6.3 Output 3: Geoframe/Kingdom in-house support for platforms, data and users

6.3.1 Description: Management of seismic interpretation platforms, versioning, platform projects and data held within those interpretation platforms

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Satisfaction from internal users that support for platforms is available and meeting their needs
Timely delivery of support to meet business needs.

PETROLEUM DATABASES AND DIGITAL ASSETS

1. Project Description: This project is responsible for managing geological and geophysical databases generated from information submitted under legislation and other sources. Access to this data is provided to industry and other interested parties.

2. Project Outcome: Data and samples are managed as a national asset. Long term preservation and custodianship allows on-going access to industry that enhances exploration opportunities within Australia.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Data management and population of petroleum databases.

6.1.1 Description: Data entered into suite of petroleum databases that provide on-line access to information on well location, geology and geochemistry and data are managed appropriately.

6.1.2 Output Type:

Business as Usual Project

6.1.4 Key Performance Indicators

All Acreage Release 2011 key and supplementary wells with rig release date > 2 years ago have fully QC'd primary header data attributes by December 2010.

All wells within AR2011 areas have full suite of data entered and checked by March 2011.

All wells coming in to open file this year have primary header data entered and sourced from WCR's using the WARP system.

6.2 Output 2: Management of digital holdings

6.2.1 Description: New submissions of digital data from petroleum companies and legacy data are lodged and managed. Files are stored on the GA file system and metadata is recorded in the Repository database PIMS. Submissions and legacy data are catalogued into a standard taxonomic structure according to data type. Confidentiality of data is managed by directories, database controls and flags.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

All Acreage Release wells are prepared and catalogued for inclusion in the AR 2011 data package (due March 2011)

All open file data moved from open checking to open to allow general access to open file ancillary data by April 2011

6.3 Output 3: Data Management support for PMD Task Forces

6.3.1 Description: The IM task forces all have critical data management components that need to be appropriately supported with trained staff. Data management components include support for data migrations, data QC, development of data comparison tools and techniques, requirements for new data entry/data management systems and project leadership (eg. WARP 2009/10).

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

Task force boards are satisfied with the engagement and contribution by the data management team

Completion of reservoir studies model/report on Gippsland Basin Study Area

6.4 Output 4: Requests for Digital data, Database extracts and expert advice

6.4.1 Description: Internal and external clients request data that is not downloadable from the GA web site or readily available by other means.

6.4.2 Output Type:

Business as Usual Project

6.4.4 Key Performance Indicators

90% of (non-acreage release) JIRA requests are satisfied within two weeks of receipt.

Clients are notified of delays and issues.

GEOLOGICAL & GEOPHYSICAL DATA REPOSITORIES

1. **Project Description:** This project is responsible for managing geological and geophysical data submitted under legislation and other sources. Access to this data is then provided to industry and other interested parties to support petroleum exploration and other geoscience activities.

2. **Project Outcome:** Access to data and information improves exploration success and enhances Australia ability to attract industry exploration programs.

3. **Project Link(s) to Intermediate-level Agency Outcomes:**

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals:**

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information:**

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs:**

6.1 **Output 1: Client Services and data access**

6.1.1 **Description:** Data and sample access is provided to internal and external clients by Client Services.

6.1.2 **Output Type:**

Business as Usual Project

6.1.4 **Key Performance Indicators**

Move current Performance of 70% of requests for Ancillary and Processed data completed within 20 days to 90% in 20 days.

60% of requests for Ancillary and Processed seismic data delivered via RDS by June 2011

6.2 **Output 2: Management of digital and physical holdings**

6.2.1 **Description:** Using databases and documentation the digital and physical holdings need to be maintained for future access. This requires that paper material is digitised, physical material is sampled sustainably and digital files are archived on media that meets ongoing needs. Remastering and migration of digital media is used to maintain the integrity of digital files on ageing media types. Migration of digital data to the Robotic Data Store is also being used to archive digital data and make it more easily accessible.

6.2.2 **Output Type:**

Business as Usual Project

6.2.4 Key Performance Indicators

All Acreage Release scanning completed by February 2011

All open file data moved from open checking to open to allow general access to open file ancillary data by April 2011

6.3 Output 3: Management and archival of data submissions

6.3.1 Description: Data and samples are submitted to the Repository under legislation by industry and for curation of materials and data generated by Geoscience Australia's work programs. The submissions must be receipted, catalogued and archived in suitable media or containers to maintain long term preservation and integrity of the material or data.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

All data submissions recorded and scheduled within JIRA

All submissions backlogs removed by October 2010 and sustainable submissions workload managed and reported against

REPOSITORIES TASKFORCE

- 1. Project Description:** Business process improvements required in the Repository have been highlighted by reviews in the last few years. There are also opportunities to improve efficiency, reduce the risk of inadvertent disclosure of confidential information and improve the level of service to clients. In particular, the implementation of the Robotics Data System (RDS) provides opportunities for improvement in all these areas. The Taskforce has been established to provide a clear focus and mechanism for implementing improvements with minimum business impact on Repository operations until the new systems are proven.
- 2. Project Outcome:** The Purpose of this project is to deliver improved systems and data to the Repository to enable it to service its clients in GA and industry in a more efficient and effective manner. It is intended to deliver benefits such as: easier ordering process for clients and faster delivery; more efficient processes for Repository staff; improved management reporting of repository workload & Performance; reduced risk of inadvertent release of confidential information; improved business continuity management and disaster recovery; improved data management and access.
- 3. Project Link(s) to Intermediate-level Agency Outcomes:**
 - Enhanced global attractiveness of Australian exploration investment opportunities
 - Improved resource management and environmental protection
 - Safer communities and infrastructure
- 4. Project Link(s) to National Research Priority (NRP) Goals:**
 - An environmentally sustainable Australia
 - Frontier technologies for building and transforming Australian industries
 - Safeguarding Australia
 - This project does not contribute to the NRPs
- 5. Key Performance Information:**
 - Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
 - Quarterly output milestones met
 - Project budget met
 - This project contributes to agency-level reporting obligations
- 6. Project Outputs:**
 - 6.1 Output 1: Robotics Data Migration and Business Process Change**
 - 6.1.1 Description:** Continue migration of seismic and ancillary data to the Robotics Data Store and implement changes to Repository business processes required to take advantage of the Robotics capability and delivery intended benefits.
 - 6.1.2 Output Type:**
Business as Usual Project
 - 6.1.4 Key Performance Indicators**
All SEG-Y data migrated to RDS by 1 September 2010
RDS being used for all SEG-Y data requests by 1 January 2011
50% of SEG-D data successfully migrated by 30 June 2011

6.2 Output 2: Replacement for the Petroleum Information Management System (PIMS)

6.2.1 Description: Develop detailed functional specifications for replacement of PIMS taking into account both internal requirements and needs of external customers. Assess whether "buy" or "build" models is preferable to meet these requirements. Implement system, test and bring into production via preferred model.

6.2.2 Output Type:

Business as Usual Project

6.2.4 Key Performance Indicators

Buy or build decision made by 31 July 2010
prototype System in place by 1 May 2010

6.3 Output 3: Enhancements to JIRA client services management system

6.3.1 Description: Further enhancements to JIRA client services management system to embed standardised repository business processes, reflect changed business processes following implementation of RDS, and improve management reporting and Performance management.

6.3.2 Output Type:

Business as Usual Project

6.3.4 Key Performance Indicators

All repository business processes tracked via JIRA
JIRA is providing regular, relevant and accurate management reports and Performance statistics
JIRA is being used as a tool to identify areas needing business process improvement

Onshore Energy & Minerals Division

OEMD Overview

OEMD is a multi-disciplinary division dedicated to providing pre-competitive geoscience information in support of and to facilitate onshore energy and mineral exploration in Australia. This is achieved through integrated programs of data gathering and assessment, conducted at national and regional scale, and commonly in collaboration with the states and Northern Territory geoscience agencies. Use is made of the latest geophysical imaging, research and mapping techniques to enhance the chances of mineral discovery and reduce the risks involved with exploration. The division also operates a state-of-the-art Sensitive High Resolution Ion Microprobe, which provides geochronology data to assist with mineral exploration and studies into the geological evolution of Australia.

OEMD also undertakes activities of national strategic importance. The most recent being the coordination of, and significant input to, the *Australian Energy Resource Assessment* released in early 2010. This national assessment examines Australia's identified and potential energy resources ranging from fossil fuels and uranium to renewables.

OEMD coordinates domestic and international mineral exploration promotion events in partnership with state and Northern Territory counterpart geological surveys and departments. It also advises the Australian Government on mineral resources, mining and land use. This work is integral to decisions in regard to multiple and sequential land use, and to an informed understanding of the nation's known mineral endowment, the sustainable development of mineral resources, and levels of exploration activity.

Priorities for 2010-11 are

- completion of the five-year Onshore Energy Security Program, including acquisition and interpretation of geophysical data and finalisation of national projects, regional geology investigations and integrated commodity studies;
- release of the first Isostatic Residual Gravity Anomaly Map of Australia
- provision of technical advice to the Government on minerals-related issues, particularly in relation to petroleum, uranium, thorium and geothermal energy, including technical input to the Geothermal Drilling Program;
- continuation of the international program of coordinated technical promotion of Australia's mineral prospectivity in partnership with the states and Northern Territory (Team Australia)

This plan sets out the activities in the division and includes all outputs delivered by projects.

ENERGY MINERAL SYSTEMS GROUP

Geothermal Energy Project

1. **Project Description**

Provide pre-competitive geoscience information including compilations of existing data, new data collections, and interpreted products, in formats useful to the geothermal industry and decision makers.

External stakeholders of this Project include: the Minister and Department of Resources, Energy and Tourism; Australian Centre for Renewable Energy; Australian geothermal industry organisations and companies including those represented by the Australian Geothermal Energy Association; all State and Northern Territory geological surveys; Department of the Environment, Water, Heritage and the Arts and Department of Climate Change, Energy Efficiency and Water; and participants in the Australian Geothermal Energy Group (AGEG), which includes government, industry and academia.

Internal stakeholders include other projects within the OEMD and OESP including Minerals and Energy Advice, the groundwater project in GEMD, and the education and communications sections.

2. **Project Outcome**

Increased exploration and development activity in this type of renewable energy system as a result of better geoscience information lowering risk to geothermal explorers and funding and decision making agencies.

3. **Project Link(s) to Intermediate-level Agency Outcomes**

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals**

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information**

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs**

6.1 **Output 1: *Acquisition of new geothermal data***

- 6.1.1 **Description:** Undertake measurements of thermal conductivity of rock samples and temperature in drill holes. Pursue collaborative arrangements with State and Territory surveys and companies for access to drill holes. Report on new heat flow measurements.

6.1.2 **Output Type:**

Business as usual Project

6.1.4 **Output Delivery Date:** ongoing

Q1

Q2 Release first heat flow results at AGECE 2010 conference (Nov 16-19)

Q3

Q4 Release of heat flow results acquired during OESP

6.1.5 **Key Performance Indicators**

- Satisfaction expressed by stakeholders regarding collaborative arrangements and data acquisition.

6.2 Output 2: Reports, maps and datasets to assist geothermal exploration

6.2.1 **Description:** Produce new data and interpretations that will assist geothermal explorers. Contribute to Onshore Energy Geodynamic Framework South Australia Energy Assessment.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Broad Cooper Basin area thermal model including new supporting data

6.2.5 **Key Performance Indicators**

- client satisfaction (positive feedback), as determined by industry and government agency comments.

6.3 Output 3: Advice and Promotion

6.3.1 **Description:**

(i) As required, provide advice to Government and other stake holders including technical input to the Australian Centre for Renewable Energy.

(ii) Participate in organising and technical committees for the Australian Geothermal Energy Conferences (AGECE) in 2010 and 2011. Conduct promotional activities as opportunities arise, including at the Geothermal Resources Council (GRC) conference and trade show and the New Zealand Geothermal Association (NZGA) Workshop.

(iii) Update information and presentation of geothermal project web page. Provide information for promotional and educational purposes.

(iv) Conduct AusAid Public Sector Linkage Program “Indo-Australian Geothermal Energy Capacity Building”.

6.3.2 **Output Type:**

Business as usual (i), (ii), (iii) Project (iv)

6.3.4 **Output Delivery Date:**

Q1

Q2 GRC, AGEC and NZGA in 2010

Q3

Q4

6.3.5 **Key Performance Indicators**

- Advice provided in a timely fashion to clients' expressed satisfaction.
- Team Australia activities conducted to participants' satisfaction.

Uranium Systems Project

7. Project Description

This project will acquire and interpret pre-competitive geoscience information related to the distribution of uranium across the Australian continent to identify prospectivity and promote the results to industry.

8. Project Outcome

Increased investment in exploration for uranium within Australia via an enhanced understanding of the distribution of uranium resources and the factors controlling their distribution.

9. Project Link(s) to Intermediate-level Agency Outcomes

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

10. Project Link(s) to National Research Priority (NRP) Goals

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

11. Key Performance Information

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

12. Project Outputs

6.1 Output 1: *Predictive national maps of potential for selected basin-related uranium systems.*

6.1.1 **Description:** Continue the development of continental scale digital maps and datasets highlighting regions with potential for basin-related uranium including unconformity-related uranium mineralisation.

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

Q1

Q2

Q3

Q4 Progress with maps/datasets as at June 2011 (AusIMM Uranium Conference)

6.1.5 Key Performance Indicators

- Maps and datasets delivered online within agreed timeframe (4th Qtr)
- Presentation material delivered at AusIMM Uranium Conference in June 2011

6.2 Output 2: Reports on the geochronology of key uranium mineral systems in Australia.

6.2.1 **Description:** Reports on the results of dating uranium deposits and related events for selected uranium mineral systems in Australia, including the Ranger, Nolans Bore (NT), Mt Gee (SA) and Maureen (Qld) and deposits.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

Q1

Q2

Q3 Reports on Mt Gee, Maureen, Nolans Bore

Q4 Reports on Ranger and other uranium systems

6.2.5 **Key Performance Indicators**

- Manuscripts submitted to journals within agreed timeframes (Qtrs 3 and 4)
- Results presented at relevant conferences including AusIMM Uranium Conference, June 2011
- Geochronology analyses completed for Ranger monazite.

6.3 Output 3: Report on uranium depositional controls in magmatic-related uranium systems

6.3.1 **Description:** Report on the geochemical and physical processes of uranium deposition in magmatic-related uranium systems, and exploration criteria for recognition of favourable geological environments of mineralisation.

6.3.2 **Output Type:**

Business as usual Project

6.3.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Report released at June 2011 AusIMM Uranium conference

6.3.5 **Key Performance Indicators**

- Manuscript submitted to journal within agreed timeframe (Qtr 4)
- Fieldwork completed and samples submitted for analysis

National Geochemical Survey of Australia Project

1. Project Description

This project will acquire a new, internally consistent and state-of-the-art geochemical dataset for surface and near-surface materials collected over the whole continent using ultra-low density sampling principles. The project will deliver a national geochemical atlas, report(s) on implications for onshore energy, including ground truthing of airborne radiometrics, and geochemical data.

2. Project Outcome

Identification of prospective geochemical provinces for energy and mineral commodities, increased investment by the exploration industry in targeted areas.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs:

6.1 Output 1: Delivery of data, maps and reports

6.1.1 **Description:** Produce a web-delivered atlas of geochemical maps, a report on energy and mineral exploration implications of the new dataset, and a freely downloadable data set on the GA website. Announce release at appropriate event.

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

Q1

Q2

Q3

Q4 Data, maps and reports on GA website; public announcement

6.1.5 Key Performance Indicators

- Timely release of data, maps, reports on website
- Public announcement on project completion

Onshore Energy Geodynamic Framework Project

1. Project Description

This project will acquire process and interpret precompetitive geoscience information related to energy resources in selected provinces and basins across Australia to identify prospectivity and promote new data and results to industry, in partnership with state and territory geological surveys.

2. Project Outcome

Increased investment in exploration for onshore energy-related resources, including geothermal, uranium, thorium and hydrocarbons, in selected provinces and basins across Australia, to improve discovery rates for onshore energy-related resources.

3. Project Link(s) to Intermediate-level Agency Outcomes

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1 Output 1: *Interpretation and release of seismic and MT data*

6.1.1 **Description:** Seismic and magnetotelluric (MT) data from the OESP seismic surveys in South Australia and Northern Territory, interpreted and released into the public domain (in collaboration with Seismic Acquisition & Processing Project, PIRSA, NTGS and AuScope).

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

- Q1
- Q2 Gawler-Officer-Musgrave-Amadeus area (SA & NT) (November 2010)
- Q3 Georgina-Arunta area (NT) (March 2011)
- Q4

6.1.5 Key Performance Indicators

- Client satisfaction (positive feedback), as determined by industry and government agency comments, on success of seismic and MT workshops.
- Delivery of products (seismic interpretations, extended abstracts) meet agreed (predetermined) time frames.

6.2 **Output 2: 3D geological and geophysical maps**

6.2.1 **Description:** 3D geophysical models of selected areas, including the eastern Arunta region, Georgina Basin and northeastern Amadeus Basin, and commencement of 3D geological and geophysical maps based on seismic, magnetotelluric, potential field and geological data.

6.2.2 **Output Type:**
Business as usual Project

6.2.4 **Output Delivery Date:**
Q1
Q2
Q3 Presentation of geophysical products
Q4 Release of geophysical modelling products

6.2.5 **Key Performance Indicators**

- Client satisfaction (positive feedback), as determined by industry and government agency comments, on success of Seismic and MT workshop.
- Delivery of product (3D geophysical models) meets agreed (predetermined) time frames.

6.3 **Output 3: Geodynamic synthesis in a time-space framework**

6.3.1 **Description:** Geodynamic synthesis in a time-space framework for the Precambrian Gawler Craton and Curnamona Province, and development of time-space products and accompanying report.

6.3.2 **Output Type:**
Business as usual Project

6.3.4 **Output Delivery Date:**
Q1 Report on Gawler Craton and Curnamona Province (September 2010).
Q2
Q3
Q4

6.3.5 **Key Performance Indicators**

- Delivery of product (report) meets agreed (predetermined) time frames.
- Client satisfaction (positive feedback), as determined by industry and government agency comments.

6.4 **Output 4: Assessment of energy systems potential (particularly for geothermal and uranium systems) of selected regions**

6.4.1 **Description:** Assessment of geothermal and uranium potential of the Curnamona Province to southern Gawler Craton area, including the development of predictive map products and accompanying reports (in collaboration with the Geothermal and Uranium Projects), and commencement on the energy assessment for the Georgina-Arunta area.

6.4.2 **Output Type:**
Business as usual Project

6.4.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Curnamona Province to southern Gawler Craton (May 2011)

6.4.5 **Key Performance Indicators**

- Delivery of product (report) meets agreed (predetermined) time frames.
- Client satisfaction (positive feedback), as determined by industry and government agency comments.

6.5 Output 5: *Acquisition, interpretation and publication of other data*

6.5.1 **Description:** Acquisition and interpretation of other data (e.g. sedimentology, geochronology, geochemistry data) to support interpretations of the new Onshore Energy Security Program (OESP) geophysical data, and publication of key results.

6.5.2 **Output Type:**
Business as usual Project

6.5.4 **Output Delivery Date:**

Q1

Q2 Reports

Q3

Q4 Reports

6.5.5 **Key Performance Indicators**

- Data collection and analysis completed against plan.
- Delivery of products (report) meets agreed (predetermined) time frames.

6.6 Output 6: *Development of geochemistry and geochronology information systems (Radiogenic Geochronology and INorganic Geochemistry (RAGING) SPOT Project)*

6.6.1 **Description:** Development and testing of geochemical and geochronological information systems, commencement of cleanup and migration of legacy data into new database and development of a simple web delivery system.

6.6.2 **Output Type:**
Business as Usual Project

6.6.4 **Output Delivery Date:**
Q1
Q2
Q3 Radiogenic Geochronology Information System
Q4 Inorganic Geochemistry Information System

6.6.5 **Key Performance Indicators**

- Achieve project milestones within agreed timeframe and applicable agency standards
- Meet customer quality expectations within applicable agency standards

Onshore Petroleum Project

1. Project Description

The project involves the acquisition, interpretation and integration of geophysical, geological and geochemical data sets that relate to underexplored onshore petroleum provinces. The project will utilise methodologies that have been applied in both the mineral and hydrocarbon exploration sectors and the work is carried out in close cooperation with relevant State geological and energy departments.

2. Project Outcome

An improved understanding of the hydrocarbon prospectivity and untapped energy resource potential of frontier basins in onshore Australia. The focus will be on older Paleozoic and Neoproterozoic basins, but will include Late Palaeozoic basins. A key result is to maximise opportunities for discovering new hydrocarbon resources and to minimise the risk to explorers with current or future interests in these provinces. Ultimately, the results of this project will contribute to Australia's onshore energy security.

3. Project Link(s) to Intermediate-level Agency Outcomes

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1 Output 1: *Interpretation and release of seismic reflection data*

6.1.1 **Description:** Relevant OESP seismic data from the Officer Basin in South Australia and Amadeus and Georgina Basins in the Northern Territory, collected during the 2008 and 2009 Onshore Energy Security Program, interpreted and released into the public domain (in collaboration with Seismic Acquisition & Processing Project, AuScope, PIRSA and NTGS).

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

- Q1
- Q2 Arckaringa and Officer Basins (November 2010)
- Q3 Amadeus and Georgina Basins (March 2011)
- Q4 APPEA conference, (April 2011)

6.1.5 **Key Performance Indicators**

- Client satisfaction (positive feedback) as determined by industry and government agency comments, on seismic interpretation and successful seismic workshops.
- Delivery of products (seismic interpretations and extended abstracts) meeting agreed (predetermined) time frames and budgets

6.2 **Output 2: *Assessment of hydrocarbon prospectivity in selected onshore sedimentary basins***

6.2.1 **Description:** Assessment of hydrocarbon prospectivity undertaken in key onshore sedimentary basins where new data have been collected as part of the Onshore Energy Security Program, including the Officer and Georgina Basins.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Report on hydrocarbon prospectivity

6.2.5 **Key Performance Indicators**

- Completion of agreed petroleum maturation modelling against target(s)/plan
- Client satisfaction (positive feedback) as determined by industry and government agency comments.

Continental Geophysics

1. **Project Description**

The Continental Geophysics project engages in the acquisition, processing, archiving, enhancement, presentation and interpretation of pre-competitive geophysical data, and the development of new computational methods that can be applied to these data. The project also manages geophysical surveys on behalf of State and Territory geological surveys.

2. **Project Outcome**

New insights into Australia's onshore energy and mineral potential, which contribute significantly to the Onshore Energy Security Program. Enhanced exploration strategies, promotion of mineral exploration opportunities and improved environmental management in Australia.

3. **Project Link(s) to Intermediate-level Agency Outcomes:**

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals:**

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information:**

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs**

6.1. **Output 1: *National Geophysical Databases and Maps***

6.1.1 **Description:** Updated datasets from the National Geophysical Databases. Datasets available via the Geophysical Archive Data Delivery System (GADDS) and the Airborne Surveys website (where appropriate).

Development and application of computational methods for processing data and compiling continental-scale gravity and magnetic products.

Publication of the 1st Edition of the Isostatic Residual Gravity Anomaly Map of Australia

Establish web pages for the Kauring (WA) Airborne Geophysics Test Site

6.1.2 **Output Type:**

Business as usual Project

6.1.4 **Output Delivery Date:**

- Q1 Launch Kauring Test Site web pages.
- Q2
- Q3 Publication of the 1st Edition of the Isostatic Residual Gravity Anomaly Map of Aust.
- Q4

6.1.5 **Key Performance Indicators**

- The public release of the Kauring Test Site web pages at the ASEG Conference on Sunday 22 August.
- The 1st Edition of the Isostatic Residual Gravity Anomaly Map is released by the end of March 2011.

6.2. **Output 2: *New geophysical datasets***

6.2.1 **Description:** Acquire new geophysical datasets to support GA operational requirements, including airborne electromagnetics, airborne magnetics\ radiometrics, and ground gravity.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

- Q1
- Q2 Frome AEM data acquisition completed under the OESP
- Q3
- Q4

6.1.5 **Key Performance Indicators**

- The acquisition phase of the Frome AEM Survey is completed as scheduled in the Contract (no later than 9 October 2010, subject to claims for stand-by from circumstances beyond the reasonable control of the Contractor).

6.3 **Output 3: *Updates to the Australian Fundamental Gravity Network (AFGN)***

6.3.1 **Description:** The AFGN provides the datum and scale for gravity surveys conducted in Australia. Selected sites will have values for absolute gravity recorded, and updated information will be made available via the GA website.

6.3.2 **Output Type:**

Business as usual Project

6.3.4 **Output Delivery Date:**

- Q1
- Q2
- Q3
- Q4 Fieldwork to collect new absolute gravity measurements.

6.3.5 **Key Performance Indicators**

- The successful completion of the work required in the 2011 AFGN field campaign to occur before the end of the fourth quarter in 2010-11.

6.4 **Output 4: *NGA geophysical data acquisition project management***

6.4.1 **Description:** Management of data acquisition for the States/NT under the NGA. Supervise geophysical acquisition by managing the procurement process and ensuring the contractor(s) adhere to the technical specifications required by GA. Quality-control data delivered by contractors, supply data to the States/NT, release to the public, add to the national databases, and archive.

Collate and QA\QC open-file company gravity data held by the States and Territories and enter into the Australian National Gravity Database

6.4.2 **Output Type:**

Business as usual Project

6.4.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4

6.4.5 **Key Performance Indicators**

- All the required surveys are successfully flown, processed and released before the end of the fourth quarter in 2010-11.

6.5 **Output 5: *Reports on computational methods and geophysical processing***

6.5.1 **Description:** Report on the development and application of computational methods for geophysical data inversion, and building 3D geology models.

Deliver a series of lectures in the South Pacific region about geophysical inversion methodologies as part of the Society of Exploration Geophysicists Honorary Lecturer Program

6.5.2 **Output Type:**

Business as usual Project

6.5.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Deliver written report

6.5.5 **Key Performance Indicators**

- The required written report is completed before the end of the fourth quarter of 2010-11.

6.6 **Output 6: *Development of a Rock Properties Database***

6.6.1 **Description:** Progress the establishment of a rock-properties database in collaboration with the Deep Exploration Technologies Cooperative Resource Centre.

6.6.2 **Output Type:**

Business as usual Project

6.6.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4 Deliver Project Plan.

6.6.5 **Key Performance Indicators**

- The development of a rock properties database is advanced over the period July 2010 to June 2011.

Seismic Acquisition & Processing

1. Project Description

The key objectives of the Seismic Acquisition & Processing Project are to:

- manage and deliver the seismic and magnetotelluric (MT) data acquisition and processing component of the OESP
- operate the GA component of ANSIR (National Research Facility for Earth Sounding) in conjunction with the ANU and Adelaide University by acquiring seismic and MT datasets as approved by ANSIR for its clients
- process seismic and MT data sets as per agreements with external stakeholders including AuScope, NGA partners, and other research projects
- maintain and develop legacy onshore seismic datasets. Respond to client requests for seismic and ancillary data.

2. Project Outcome

New insights into Australia's onshore energy and mineral potential, which contribute significantly to the Onshore Energy Security Program. Australia is at the leading edge of key technological developments in the field of imaging of the Earth's crust using seismic techniques.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1. Output 1: *Seismic and MT data acquisition*

6.1.1 **Description:** Acquisition of seismic and MT data sets for the OESP, NGA partners, ANSIR and AuScope, planned in conjunction with the Onshore Energy Geodynamics Framework Project and the other stakeholders.

6.1.2 Output Type:

Business as usual Project

6.1.4 **Output Delivery Date:**

- Q1 NGA Youanmi Seismic& MT Survey
- Q2 OESP Kidson Seismic Survey (or alternative program)
- Q3
- Q4

6.1.5 **Key Performance Indicators**

- Timely acquisition of data sets and satisfied clients/stakeholders

6.2. Output 2: *Seismic and MT data processing*

6.2.1 **Description:** Processing of seismic and MT data from surveys acquired for the OESP, NGA partners, ANSIR and AuScope. Supply of technical information, seismic images and MT models as inputs into geophysical and geological interpretation workshops conducted with the Onshore Energy Geodynamics Framework Project and other stakeholders.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

- Q1 OESP Georgina –Arunta Seismic Survey (Oct)
- Q2 AuScope Southern Delamerian Survey, ANSIR Ararat Survey (Dec)
- Q3
- Q4 AuScope Capricorn Survey (June)

6.2.5 **Key Performance Indicators**

- Timely processing of data and supply of outputs to meet client expectations.

6.3 Output 3: *Seismic data management and delivery*

6.3.1 **Description:** Management, recovery and delivery of onshore seismic data in the custodianship of GA. Continued release and delivery of seismic datasets via the internet.

6.3.2 **Output Type:**

Business as usual Project

6.3.4 **Output Delivery Date:**

- Q1
- Q2
- Q3
- Q4

6.3.5 **Key Performance Indicators**

- Satisfied clients, web statistics of data downloads

AEM Acquisition and Interpretation Project

1. **Project Description:**

Acquire, process and interpret airborne electromagnetic data for the Onshore Energy Security Program in selected areas of Australia.

2. **Project Outcome:**

Increased investment in exploration for onshore energy-related resources, including geothermal, uranium, thorium and hydrocarbons, in selected provinces and basins across Australia, to improve discovery rates for onshore energy-related resources.

3. **Project Link(s) to Intermediate-level Agency Outcomes:** [tick one]

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals:** [tick one]

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information:** [tick one]

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs**

6.1. **Output 1: *Pine Creek (NT) – Value added AEM data release***

6.1.1 **Description:** Finalise complete release of processed value-added products into the public domain including conductivity depth sections and grids of conductivity depth slices.

6.1.2 **Output Type:**

Business as usual Project

6.1.4 **Output Delivery Date:**

- Q1
- Q2
- Q3
- Q4

6.1.5 Key Performance Indicators

- Timely delivery of data.
- Downloads of data from GA webpage.
- Evidence of use of GA data in publicly available company reports, announcements and presentations.

6.2. Output 2: *Pine Creek (NT) – AEM Interpretation Record*

6.2.1 **Description:** Produce a GA record documenting the results of interpretation of the AEM data. Interpret AEM data and integrate results of other studies including solid geology, bore hole data and landscape evolution. Collaborate with the groundwater group, and support their studies on implications for palaeo-valley groundwater resources in the region. Document the inferred implications for exploration for uranium and other commodities incorporating results from collaboration with the Uranium Systems Project and Minerals Promotion group.

6.2.2 Output Type:

Business as usual Project

6.2.4 Output Delivery Date:

Q1

Q2

Q3

Q4 Record released in conjunction with the NTGS AGES Conference.

6.2.5 Key Performance Indicators

- Timely delivery of GA Record.
- Download statistics from GA webpage.
- Delivery of report results at workshop, with significant industry attendance.

6.3. Output 3: *Frome Embayment (SA) – Contractor Supplied AEM data release*

6.3.1 **Description:** Release contractor supplied AEM data into the public domain including the full tabulated ascii data, multi plots and selected gridded data.

6.3.2 Output Type:

Business as usual Project

6.3.4 Output Delivery Date:

Q1

Q2

Q3

Q4

6.3.5 Key Performance Indicators

- Timely delivery of data.
- Downloads of data from GA webpage.
- Evidence of use of GA data in publicly available company reports, announcements and presentations.

RESOURCES, ADVICE & PROMOTIONS GROUP

National Mineral Resources Project

1. Project Description

This project encompasses assessment of national mineral and solid fuel resources, development of the on-line Australian Mines Atlas and assistance in provision of authoritative scientific/technical advice in support of policies and decisions on minerals, energy and land use issues.

2. Project Outcome

Informed decision-making for mineral resource management, land use planning and environmental protection

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1 Output 1: National assessment of mineral resources

6.1.1 Description:

- (a) Publication of annual commodity summaries for Australia's Identified Mineral Resources (AIMR) 2010
- (b) Updating of Geoscience Australia's Mineral Deposits database (OZMIN), Mineral Occurrence database and publication of resource assessments for AIMR 2011 (Table 1)

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

- Q1
- Q2 (a)
- Q3
- Q4 (b)

6.1.5 Key Performance Indicators

- AIMR 2010 published by December 2010,
- OZMIN database progressively updated in timely manner,
- Client satisfaction indicated by positive feedback from government agencies and other clients,
- National assessments utilised in the development of government policy and for decision making (EPBCs, FIRBs etc).

6.2 Output 2: *Australian Mines Atlas (AusMA)*

6.2.1 Description: Update and maintain AusMA, which is now core to online presentation of Australia's Identified Mineral Resources, and is a popular site for seeking information on Australia's minerals sector with a diverse range of users from government agencies and the wider community.

6.2.2 Output Type:

Business as usual Project

6.2.4 Output Delivery Date:

- Q1
Q2
Q3
Q4

6.2.5 Key Performance Indicators:

- Web use statistics demonstrating significant usage
- Timely, accurate updates and maintenance of AusMA

6.3 Output 3: *Australian representation at Joint OECD/NEA-IAEA Uranium Group and contribution to the publication 'Uranium 2009, Resources, Production & Demand' (Red Book)*

6.3.1 Description:

- (a) Update response to OECD/NEA-IAEA *Red Book Questionnaire 2009*
- (b) Review draft of 'Uranium 2009, Resources, Production & Demand'
- (c) Update Australia's data on uranium deposits for the IAEA database (UDEPO)
- (d) Participation in and reports for meetings of Uranium Group as Australian delegate and Vice Chair

6.3.2 Output Type:

Business as usual Project

6.3.4 Output Delivery Date:

- Q1 (a)
Q2 (b, d)
Q3
Q4 (c, d)

6.3.5 Key Performance Indicators

- Australian chapter of Red Book completed by December 2010
- RET and Uranium Group (OECD and IAEA) satisfaction with responsibilities as discharge by Australian delegate and Vice Chair to Uranium Group meetings

- Editorial comments on Red Book delivered in timely fashion to UG

6.4 Output 4: Australian Government representation on the Ministerial Council of Mineral and Petroleum Resources' Subcommittee of Chief Inspectors of Mines (SCIM)

6.4.1 Description:

- Represent the Commonwealth at SCIM annual meeting
- Finalise actions and communiqué from the meeting and update the SCIM's website

6.4.2 Output Type:

Business as usual Project

6.4.4 Output Delivery Date:

Q1

Q2 (a) and (b)

Q3

Q4

6.4.5 Key Performance Indicators:

- Successful co-ordination of SCIM annual meeting
- Provision of timely and accurate records from SCIM meeting.

6.5 Output 5: Indian Ocean Territories GIS for Attorney-General's Dept.

6.5.1 Description: With funding from client agency:

- Integration of new data sets and reports.
- Delivery to clients and stakeholders of up-to-date versions of both the Christmas Island GIS and the Cocos Island GIS.
- Support to clients and stakeholders in using the GIS.
- Obtain quotes for a lidar survey at Christmas Island and if AGD agree, manage the survey and process and distribute the data.

6.5.2 Output Type:

Business as usual Project

6.5.4 Output Delivery Date:

Q1

Q2

Q3

Q4 (a), (b), (c) & (d) are ongoing.

6.5.5 Key Performance Indicators:

- Support and supply of data compilation contributes to IOT outcomes.
- AGD's commitment to GA's management of Christmas Island lidar survey
- Timely, accurate provision of data sets, reports and support to clients.

6.6 Output 6: Web maps for Department of Environment, Water, Heritage and the Arts (DEWHA) and Office of Renewable Energy Regulator (ORER)

6.6.1 Description: With funding from client agencies, update existing online web maps of electricity generating stations (fossil fuels and renewable) as requested by DEWHA.

6.6.2 **Output Type:**

Business as usual Project

6.6.4 **Output Delivery Date:**

Q1

Q2

Q3

Q4

6.6.5 **Key Performance Indicators:**

- Updates of the web maps completed 6 monthly to satisfaction of DEWHA
- DEWHA's ongoing commitment to utilise MR's services
- Satisfaction of clients by use of web maps

National Advice, Maps and Data Standards Project

1. Project Description:

The project aims to:

- provide timely authoritative scientific and technical advice to the Australian Government and industry to assist the development and growth of a sustainable mineral and energy resources sector.
- develop a seamless digital synthesis of GA's geological map data, and set standards for compilation and management of that data, including surface and solid geology, regolith, provinces, crustal elements, and the Australian stratigraphic lexicon.
- through national and international collaboration, develop standards for interoperable geoscientific digital data transfer between GA and its clients.

2. Project Outcome

- Better knowledge of minerals and energy resource management, land use planning and environmental protection to inform decision-makers in the minerals and energy resources sector.
- Enhanced potential for the Australian community to obtain economic, social and environmental benefits through the efficient delivery of seamlessly joined, standardised, digital geological information of the continent.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1. Output 1: Advice

- 6.1.1 **Description:** Timely provision of high quality authoritative, independent scientific and technical advice on mineral and energy resources; exploration and mining, associated environment matters, land use, industry developments and technologies to the Department of Resources, Energy and Tourism, Department of Environment, Water and the Arts, Department of Prime Minister and Cabinet, Department of Innovation, Industry, Science and Research and other external agencies on a cost recovery basis.

6.1.2 **Output Type:**
Business as usual Project

6.1.4 **Output Delivery Date:**
Q1
Q2
Q3
Q4

6.1.5 **Key Performance Indicators**
• Provide quality advice within agreed time frames to client satisfaction.

6.2 **Output 2: *Quarterly uranium reports***

6.2.1 **Description:** Prepare quarterly reports summarising the current status of advanced uranium projects and industry developments to bring together essential information to facilitate quick and accurate responses to the Department of Resources, Energy and Tourism and the Minister.

6.2.2 **Output Type:**
Business as usual Project

6.2.4 **Output Delivery Date:** ongoing
Q1
Q2
Q3
Q4

6.2.5 **Key Performance Indicators**
• Provide an updated report at the end of each quarter to RET satisfaction.

6.3 **Output 3: *Compilation and maintenance of Australian geological map data.***

6.3.1 **Description:**

- (i) Continue to update edition of 1:1 million scale Surface Geology of Australia dataset, incorporate new mapping and correct identified errors. Deliver this data via a GA geological maps geodatabase and associated map services (see Output 4). - [Delivery is contingent on potential demands of Programme Darwin]
- (ii) Australian Geological Provinces - Continue to compile a national provinces dataset of the near-surface geological province geometries and attributes, concentrating initially on onshore sedimentary basins, to support resource analysis and regional geodynamic frameworks. Deliver this data via a GA geological maps geodatabase and associated map services (see Output 4).
- (iii) Australian Crustal Elements (ACE) – Continue to compile a 2nd edition of the Australian Crustal Elements and the underlying evidence, to inform continent-scale tectonic appraisal of mineral and energy resources. (Deliver this data via a GA geological maps geodatabase and associated map services see Output 4).
- (iv) Update the 250K scanned geological maps website on the Geoscience Portal, by scanning and geolocating recent 250K geological maps.

6.3.2 **Output Type:**
Business as usual (i), (iv) Project (ii), (iii)

6.3.4 **Output Delivery Date:**

Q1

Q2 (Updated scanned 250K maps)

Q3

Q4 (Updated 1:1M edition geology released. First phase of Crustal Elements dataset compiled; ongoing geological province compilation)

6.3.5 **Key Performance Indicators**

- Produce an updated 1:1million geology dataset in agreed time and accepted by relevant State/Territory agencies. *[Delivery is contingent on potential demands of Programme Darwin]*
- Ongoing compilation of national provinces dataset in agreed time and accepted by GA peer review.
- Compiled first phase of 2nd edition of ACE datasets in agreed time and accepted by GA peer review.
- Scan 1:250k geological maps in a timely manner to agreed standards.

6.4 **Output 4: Construction of enterprise ESRI geodatabases for GA's geological map data, and standards-based map services to deliver the data**

6.4.1 **Description:**

(i) Design and construct maintenance geodatabase layers for a selection of GA's geological map data in production environment.

(ii) Populate the geodatabase with data from OEMD research projects and from legacy data. This may include surface and solid geology, regolith, provinces, national-scale crustal elements. Design and populate distribution geodatabase layers for the data in (i) and (ii) with additional supporting raster, line, polygon, and point datasets. This includes any tools and procedures required to move data and metadata to distribution.

In collaboration with GEMD, ISB and PMD, deliver the geodatabase internally for ArcGIS and web browser clients, via standards-compliant map services, with a view to external delivery via similar mechanisms. This would be done in full recognition of any requirements of Program Darwin.

6.4.2 **Output Type:**

Business as usual Project

6.4.4 **Output Delivery Date:**

Q1 Completion of additional maintenance geodatabases

Q2 Completion of additional distribution geodatabases

Q3

Q4 Internal delivery of map services and browser-based applications

6.4.5 **Key Performance Indicators**

- Design and construct data sets in maintenance and distribution enterprise geodatabases in agreed time and accepted through OEMD peer review.
- Provide process documentation and standards-compliant metadata for all created enterprise data sets.
- Deliver data sets internally via standards-compliant map services in agreed time and accepted through GA expert peer review.

6.5 Output 5: Australian Stratigraphic Units Database, standards development and advice

6.5.1 Description:

- (i) Continue to populate the Australian Stratigraphic Units Database (ASUD) to provide an authoritative and current lexicon of Australian geological units to support geoscientific and resource analysis of the Australian continent and marine territories.
- (ii) Chair Australian Stratigraphy Commission. Provide expert advice to Australian geologists on naming and defining lithostratigraphic units.
- (iii) Promulgate and develop national guidelines and contribute Australian input to IUGS International Subcommittee on Stratigraphic Classification (ISSC). Seek Australian views on stratigraphic matters and contribute them to international discussion via the ISSC.

6.5.2 Output Type:

Business as usual Project

6.5.4 Output Delivery Date: ongoing

Q1

Q2

Q3

Q4

6.5.5 Key Performance Indicators

- Ongoing population of the ASUD with quality information that is useful to clients.
- Value demonstrated by willingness of State/Territory Geological Surveys to continue cooperative arrangements for quality control and identifying new material to be added.
- Expert advice on stratigraphy provided to, and accepted by, clients.
- National guidelines improved and Australian contribution made to international guidelines, by the Australian Stratigraphy Commission, as appropriate.

6.6 Output 6: Data Standards Development

6.6.1 **Description:** Chair the GeoSciML Model Development task group of the IUGS Interoperability Working Group to develop and test GeoSciML v3.0. Maintain interoperable WMS/WFS services of GA's national scale geological data. Provide expert advice to GA projects in data modelling (eg, geological map datasets, geochemistry, geochronology, groundwater)

- (i) Update the GA GIS Data Dictionary to describe the new geological map geodatabase standard.
- (ii) Maintain ongoing WMS/WFS OneGeology web service of 1:2.5M and 1:1M scale geology data. This may include hosting of the service at AuScope (CSIRO Perth).
- (iii) Lead the editing of the GeoSciML version 3.0 data standard. Contribute to GeoSciML Testbed 4 to test interoperable data delivery.
- (iv) OEMD data audit [This output will be delivered subject to demands of the Darwin Programme.]

6.6.2 Output Type:

Business as usual (ii) Project (i), (iii), (iv)

6.6.4 **Output Delivery Date:**

Q1

Q2 (GIS Data Dictionary updates, OEMD data audit)

Q3

Q4 (GeoSciML version 3.0 released, GeoSciML Testbed 4 contribution)

6.6.5 **Key Performance Indicators**

- Provide an updated GA GIS data dictionary in agreed time and standard.
- Successfully contribute to the GeoSciML version 3 release and GeoSciML Testbed 4 in agreed time and to client satisfaction.
- Ongoing geology map web services maintained and functioning according to OGC standards.
- Complete an OEMD data set audit in agreed time. *[This output will be delivered subject to demands of the Darwin Programme.]*

34th International Geological Congress Project

1. Project Description

Establish the contractual, logistical and marketing framework for the 34th International Geological Congress (AUSTRALIA 2012), to be held in Brisbane 2-10 August 2012.

2. Project Outcome

A heightened international profile and enhanced reputation for the region's geoscientific strengths and resource-based industries.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- The cost effective establishment of programs supporting the AUSTRALIA 2012, in particular the contractual, marketing and logistical framework supporting the Congress.

6 Project Outputs

6.1 Output 1: *Establish Framework for the 2012 IGC*

6.1.1 Description:

- (a) Contract agreements established to underpin the framework for the IGC and contract required reporting of IGC preparations is completed to the satisfaction of financial stakeholders.
- (b) Financial arrangements including payments from Queensland Events societies and State, Territory and New Zealand Surveys are secured.
- (c) Market promotion of the IGC raises national and international awareness of the IGC.
- (d) The logistics of planning for the IGC including timetables, scientific programs and workshop arrangements are developed for review by the IGC Organising Committee.

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

- Q1 Secure agreement from the State, Territory and New Zealand Surveys for 2010 payments towards the IGC fund administered by the Australasian Institute of Mining and Metallurgy (AusIMM).
- Q2
- Q3 Secure the fourth instalment payment from Queensland Events to the IGC fund administered by the AusIMM.
- Q4

6.1.5 Key Performance Indicators

- Client satisfaction with arrangements for Organising Committee and International meetings for the IGC, as determined by stakeholder comment. Financial support for the IGC from Queensland Events is secured.
- Annual financial support for the IGC from states, NT and NZ Geological Surveys for the IGC is secured.
- Design and planning for IGC workshops agreed with sponsors and arrangements in place for payments within prescribed timelines.

6.2 Output 2: *Deliver Content for a Hard Cover Colour Book for the 2012 IGC “a Geology of Australia”*

6.2.1 Description:

- (a) Manage drafting and editing of the IGC publication “a Geology of Australia”, coordinated through GA’s Conference and Promotions Manager.
- (b) Ensure abstract drafting and public presentation of the individual chapter proposals at the Australian Earth Sciences Convention in Canberra in July 2010.
- (c) Manage financial aspects of the IGC book production process, including preparation of figures for the book, to ensure adequate resources are available from the allocation decided by the Executive Board in November 2008.
- (d) Manage funding for author participation in the book production processes, and
- (d) Establish and manage an external peer review process for the IGC book.

6.2.2 Output Type:

Business as usual Project

6.2.4 Output Delivery Date:

- Q1 Public information sessions on the IGC and the IGC book at the Australian Earth Sciences Convention in July 2010.
- Q2 IGC book second draft author workshop in early 2011.
- Q3 Finalise arrangements with GA’s Geospatial Applications Visualisation Unit, and commence drafting of figures for IGC book chapters.
- Q4 Finalise text and graphics for the IGC book, incorporating external review and author consideration.

6.2.5 Key Performance Indicators

- Conduct “a Geology of Australia” Symposia at the Australian Earth Sciences Convention in July 2010 as agreed with Conference Convenors
- Finalise the second draft of the book “a Geology of Australia” for editor consideration by April 2011.
- Incorporate author supplied images for the book in consultation with GA’s Geospatial Applications and Visualisations Unit by June 2011.

Mineral Exploration Promotion Project

1. Project Description

The project aims to encourage increased investment in mineral exploration and discovery of mineral resources in Australia by increasing the awareness of mineral exploration opportunities and by increasing the awareness of the availability of pre-competitive geoscience. Project activities include technical presentations and exhibitions at selected major national and international mineral exploration and mining technical conferences, and targeted release of scientific reports, maps and datasets that highlight Australia's mineral resources and potential. The international promotion and much of that in Australia is conducted in partnership with the State and Northern Territory geological surveys and coordinated through the Chief Government Geologist's Conference (CGGC) under the auspices of the Ministerial Conference of Mineral and Petroleum Resources (MCMPR). The technical information and products are disseminated to Australian and international mining and exploration companies through the Internet, technical journals and magazines, as digital products, and/or as hard copy as appropriate.

2. Project Outcome

Increased global awareness of mineral exploration opportunities in Australia.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1 Output 1: *International Mineral Exploration Promotion Events*

6.1.1 **Description:** Coordinated technical programs and mineral exploration investment seminars by Geoscience Australia in partnership with State and Northern Territory geological surveys and mines departments

6.1.2 Output Type:

Business as usual Project

6.1.4 **Output Delivery Date:**

- Q1 Australian Governments Mineral Exploration Promotion Plan for 2010-2011; Minerals and Energy Showcase at Shanghai World Expo 2010
- Q2 China Mining 2010, Tianjin, China; Fifth Australian Mineral Exploration Investment Seminar, Beijing, China; Second Australian Mineral Exploration Investment Seminar Seoul, Korea; Sixth Australian Mineral Exploration Investment Seminar, Tokyo, Japan. All events in November 2010
- Q3 Prospectors and Developers Association of Canada International Convention, Trade Show and Investors Exchange, Toronto, Canada, March 2011
- Q4 Report to CGGC on outcomes of 2010-11 Australian Governments' mineral exploration promotional program

6.1.5 **Key Performance Indicators**

- Client satisfaction as determined by positive feed back from Chief Government Geologist Committee
- Client satisfaction as determined by positive feed back by delegates and uptake of informational products provided

6.2 **Output 2: *Domestic Mineral Exploration Promotion Events***

6.2.1 **Description:** Technical presentations; coordinated technical promotions by Geoscience Australia in partnership with participating State and Northern Territory geological surveys

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Output Delivery Date:**

- Q1 Diggers and Dealers Mining Forum, Kalgoorlie, August 2010
- Q2 Mining 2010 Resource Convention, Brisbane, October 2010
- Q3
- Q4 AMEC National Mining Congress, Perth, June 2011

6.2.5 **Key Performance Indicators**

- Client satisfaction as determined by positive feed back from participating State/Northern Territory agencies
- Client satisfaction as determined by positive feed back by delegates and uptake of informational products provided
- Client satisfaction as determined by positive feed back by delegates on Geoscience Australia presentations in conference program

6.3 **Output 3: *Mineral Exploration Promotional Products***

6.3.1 **Description:** Compile and distribute Minerals Alert email newsletter. Compile and revise maps of Australian mineral deposits and mineral resources; technical reports, briefings, reviews, presentations, research papers and syntheses of Australian mineral resources, mineral resources potential and exploration trends and outcomes.

6.3.2 **Output Type:**

Business as usual Project

6.3.4 **Output Delivery Date:**

- Q1 Minerals Alert; Australian iron ore, coal, phosphate and manganese resource maps (1:10 million).
- Q2 Minerals Alert; Australian gold and uranium resource maps (1:10 million)
- Q3 Minerals Alert; Review of mineral exploration in Australia 2010; Australian copper, nickel and lead-zinc resource maps (1:10 million)
- Q4 Minerals Alert; Australian Operating Mines Map (1:10 million)

6.3.5 **Key Performance Indicators**

- Product delivery meeting delivery time table
- Product uptake as determined by web delivery statistics
- Client satisfaction as determined by positive feed back by users of products

Geochronology Laboratory

1. Project Description

Determine the ages of rocks and geological events using GA's U-Pb Sensitive High Resolution Ion Microprobe (SHRIMP) and other analytical techniques in support of GA and State and Northern Territory geoscience programs under the National Geoscience Agreement. Maintain database of geochronological data and disseminate results.

2. Project Outcome

Improved geochronologic framework of Australian geological history to support better mineral exploration strategies.

3. Project Link(s) to Intermediate-level Agency Outcomes:

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. Project Link(s) to National Research Priority (NRP) Goals:

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. Key Performance Information:

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. Project Outputs

6.1 Output 1: *Processed mineral samples for analysis*

6.1.1 **Description:** Process up to 150 rock samples per annum to separate mineral grains, and prepare and document samples so that they are suitable for geochronological and isotopic analysis using SHRIMP and other techniques. Promote best practice procedures for mineral sample collection and preparation.

6.1.2 Output Type:

Business as usual Project

6.1.4 Output Delivery Date:

- Q1
- Q2
- Q3
- Q4

6.1.5 Key Performance Indicators

- Number of samples processed completed to agreed quality standard against target.
- Positive feedback about quality of facilities and product from external observers.

6.2 Output 2: *SHRIMP U-Pb age determinations and method development*

6.2.1 **Description:** Maintain an in-house facility housing the GA SHRIMP-IIe ion probe and scanning electron microscope with EDX facility for the production of state-of-the-art U-Pb isotopic ages of minerals aiming for up to 150 production days per annum. Contribute data and expertise as required to Onshore Energy and Minerals Division programs and programs under the National Geoscience Accord with State and Territory collaborators. Manage joint use of the facility on the behalf of GA and licensee, Australian Scientific Instruments. Manage collaborative relationships with State and Territory NGA partners. Continue gradual development of new analytical techniques to meet emerging project requirements.

6.2.2 **Output Type:**
Business as usual Project

6.2.4 **Output Delivery Date:**
Q1
Q2
Q3
Q4

6.2.5 **Key Performance Indicators**

- Number of samples analysed and reported completed to agreed quality standard against target.
- Positive feedback about quality of analyses and reporting from government agencies and external observers.

6.3 Output 3: *Geochronological data management and delivery system*

6.3.1 **Description:** Provide expert and user advice to ICT development specialists building new systems for managing geochronological data from the SHRIMP Laboratory (part of the RAGING SPOT project). The focus is on developing tools to improve the delivery of geochronology data to clients. Provide leadership and advice to national-scale data infrastructure projects via groups such as the Geochronology Working Group.

6.3.2 **Output Type:**
Business as usual Project

6.3.4 **Output Delivery Date:**
Q1
Q2
Q3
Q4

6.3.5 **Key Performance Indicators**

- Positive feedback from development team about timeliness and quality of advice.
- Positive feedback from Geochronology Working Group about timeliness and quality of information and advice.

OEMD INFORMATION SERVICES

1. **Project Description:**

OEMD Information Services aim to enable OEMD business areas and data stewards to:

- Efficiently manage and deliver to clients annual Workplan outputs
- Sustainably steward the national data collections for which Geoscience Australia is custodian

to a 'best practice' standard ensuring reliability, quality and sustainability of support and solutions provided.

OEMD IS liaises and collaborates with Corporate Branch, ISB and the other business divisions to deliver support as a set of efficient and effective services.

2. **Project Outcomes:**

- To support OEMD business with the supply of information resources and services that underpins divisional and agency outputs.

3. **Project Link(s) to Intermediate-level Agency Outcomes:**

- Enhanced global attractiveness of Australian exploration investment opportunities
- Improved resource management and environmental protection
- Safer communities and infrastructure

4. **Project Link(s) to National Research Priority (NRP) Goals:**

- An environmentally sustainable Australia
- Frontier technologies for building and transforming Australian industries
- Safeguarding Australia
- This project does not contribute to the NRPs

5. **Key Performance Information:**

- Level of uptake by, and satisfaction levels of, key stakeholders with GA outputs
- Quarterly output milestones met
- Project budget met
- This project contributes to agency-level reporting obligations

6. **Project Outputs**

6.1 **Output 1: *Business as Usual (BAU) Services***

6.1.5 Description: To support OEMD and Geoscience Australia in BAU activities which include Application Support and Maintenance, Web Publishing and Product Release, Advice and Liaison and Data Stewardship Support.

6.1.2 **Output Type:**

Business as usual Project

6.1.4 **Key Performance Indicators:**

90% of all BAU tasks are completed within agreed terms including timeframe and applicable agency standards.

90% time spent on BAU tasks is logged for performance measurement and reporting purposes.

6.1.5 **Output Delivery Date:**

Q1

Q2

Q3

Q4

6.2 **Output 2: *Project Services***

6.2.1 **Description:** To supply expertise to business prioritised information system projects within OEMD and across Geoscience Australia.

6.2.2 **Output Type:**

Business as usual Project

6.2.4 **Key Performance Indicators:**

Achieve project milestones within agreed timeframes and applicable agency standards.

90% time spent on project tasks is logged for performance measurement and reporting purposes.

6.2.5 **Output Delivery Date:**

Q1 AFGN Explorer

Q2

Q3

Q4