bushfire&natural HAZARDSCRC

NATURAL HAZARD EXPOSURE INFORMATION FRAMEWORK

Dr Krishna Nadimpalli

Geoscience Australia, Canberra

Australian Government
Department of Industry and Science
Business Cooperative Research Centres Programme
Australian Government
Geoscience Australia
UNIVERSITY OF CANBERRA
THE UNIVERSITY OF MELBOURNE

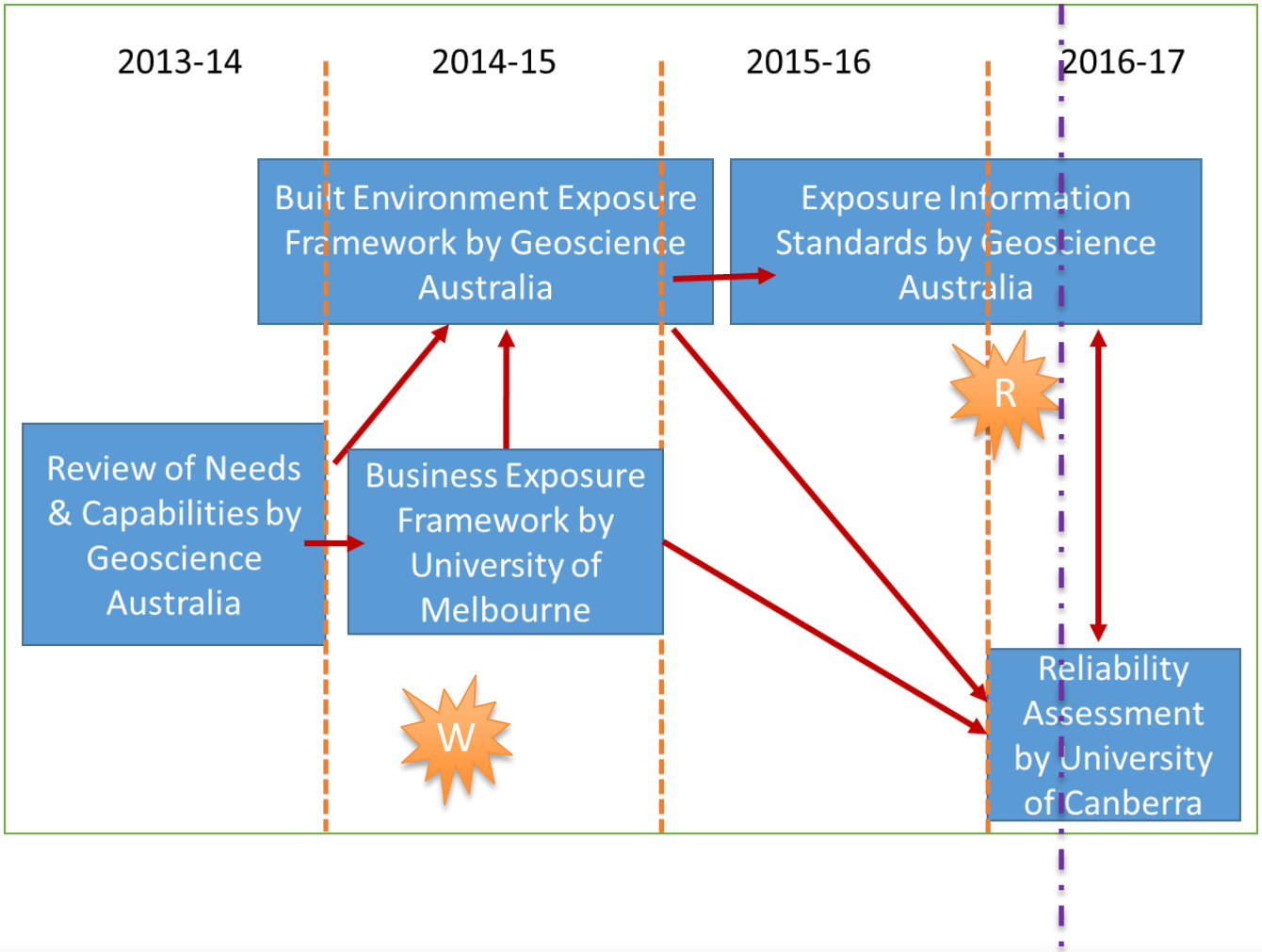
PROJECT TEAM

Research Manager:	Michael Rumsewicz, BNHCRC
Lead User Representative:	Leesa Carson, Geoscience Australia
Lead Researcher:	Michael Griffith, Uni. of Adelaide
Project Leader:	Krishna Nadimpalli, Geoscience Australia
Research Team:	Itismita Mohanty, Uni. Of Canberra Mohsen Kalantari, Uni. Of Melbourne Yogi Vidyattama, Uni. Of Canberra Martin Wehner, Geoscience Australia Shelby Canterford, Geoscience Australia Maroof, Geoscience Australia
End Users:	Jackson Parker, WA-DFES Elliott Simons, NSW-SES Corey Shackleton, NSW-Rural Fire Service Greg Howard, SA Metropolitan Fire Service Steve Edwards, ACT-ESA Greg Buckley, NSW Fire & Rescue Duncan McLuckie, NSW Environment

RESEARCH OBJECTIVE

To develop a nationally consistent exposure information framework that *enables more robust, reliable and operational* capabilities to address disaster preparedness, planning, response and recovery for all levels of government (local, state and federal), industry and research.

PROJECT TIMELINES & STATUS



Geoscience Australia - Exposure Report

ZEUS Event#: 9999

Event name: Central Ranges Bushfire Danger Rating Boundary

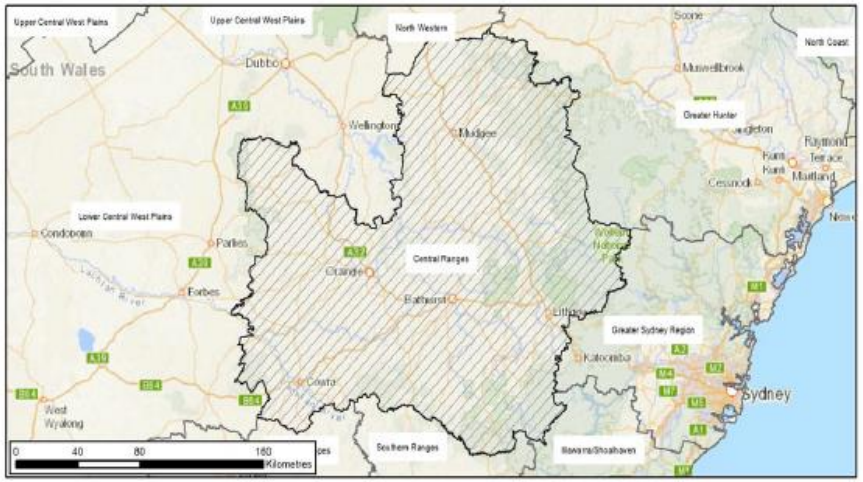
Event type: Bushfire

Australian Government
Geoscience Australia

Report Date: 20-10-2015 17:24:09

LGAs within the event footprint: Bathurst Regional (A), Blayney (A), Blue Mountains (C), Boorowa (A), Cabonne (A), Cowra (A), Dubbo (C), Forbes (A), Hawkesbury (C), Lithgow (C), Mid-Western Regional (A), Muswellbrook (A), Narromine (A), Oberon (A), Orange (C), Parkes (A), Singleton (A), Upper Hunter Shire (A), Upper Lachlan Shire (A), Warrumbungle Shire (A), Weddin (A), Wellington (A), Wollondilly (A), Young (A)

Localities within the event footprint: Bathurst, Blayney, Canowindra, Carcoar (L), Cargo (L), Clifton Grove (L), Cowra, Cudal (L), Cumnock (L), Eugowra (L), Gulgong, Kandos, Koorawatha (L), Lithgow, Lyndhurst (L), Manildra (L), Marrangaroo (L), Millthorpe (L), Molong, Mudgee, Oberon, Orange, Perthville (L), Portland (NSW), Putta Bucca - Bombira (L), Rylstone (L), Spring Hill (L), Wallerawang, Woodstock (L), Yeoval (L)



Footprint data source: BoM

Building Exposure Information, V6.0 August 2015	
Residential	**Event**
Population count	141,297
Dwelling count*	62,721
Building count	58,347
Pre 1980 construction count	11,047
Reconstruction value	$23,629,540,000
Contents value	$9,138,690,000
Commercial	
Building count	2,007
Reconstruction value	$10,978,110,000
Industrial	
Industrial Building count	1,380
Reconstruction value	$5,531,570,000
2011 SEIFA IRSAD	
Dwellings in area with a SEIFA decile 10 score (most advantaged)	875
Dwellings in area with a SEIFA decile 9 score	1,852
Dwellings in area with a SEIFA decile 8 score	4,326
Dwellings in area with a SEIFA decile 7 score	5,249
Dwellings in area with a SEIFA decile 6 score	5,214
Dwellings in area with a SEIFA decile 5 score	5,615
Dwellings in area with a SEIFA decile 4 score	7,067
Dwellings in area with a SEIFA decile 3 score	8,228
Dwellings in area with a SEIFA decile 2 score	11,733

Dwelling estimates where residents:		
Demographic	**Event**	**NSW (Av)**
Are all aged 65 or over	20.7%	17.7%
Are a single parent family	4.9%	4.1%
Are in need of assistance for self-care activities	9.8%	9.5%
Are not all proficient in English	0.7%	1.6%
Do not have access to a motor vehicle	8.8%	11.3%
No one has completed Year 12 or higher	27.0%	18.9%
Moved to the region in the last 1 year	6.8%	9.0%
Moved to the region in the last 5 years	20.8%	27.8%
Economic		
Are low income ($1-599/week)	45.7%	38.5%
Are medium income ($600-$1,999/week)	49.2%	52.7%
Are high income ($2,000+/week)	4.1%	7.5%
Are in public housing	6.0%	6.0%

**Residential demographic and economic information is not provided for dwelling counts less than 20.*

Building Exposure Information, V6.0 August 2015	
Dwellings in area with a SEIFA decile 1 score (most disadvantaged)	12,562

Agricultural estimates	
Agriculture Commodity Est. Value 2012-13	$360,220,000
Commodities include: Almonds, Apples, Apricots, Avocados, Barley, Beans french runner, Beehives, Blackcurrants, Blueberries, Broccoli, Buffaloes, Canola, Capsicums, Carrots, Cauliflowers, Cereal for hay, Cereals other purposes, Cherries, Chickens layers, Chickpeas, Coriander, Cultivated turf, Cut flowers, Dairy cattle, Deer, Ducks, Eggs, Faba beans, Field peas, Goats, Grain sorghum, Grapes, Herbs, Horses other, Horses stud, Lavender, Lentils, Lettuces, Lupins, Lychees, Macadamias, Maize, Mandarins, Meat cattle, Melons, Mung beans, Nectarines, Nurseries, Oats, Olives, Onions, Oranges, Other berries, Other cereals, Other citrus fruit, Other crops, Other crops for hay, Other field beans, Other fruit, Other livestock, Other nuts, Other orchard fruit, Other poultry, Other vegetables, Pasture for hay, Pasture seed, Peaches fresh, Peaches processing, Pears, Peas fresh market, Pigs, Pistachios, Plums, Potatoes, Prunes, Pumpkins, Raspberries, Safflower, Sheep lambs, Strawberries, Sugarcane crushing, Sunflower, Sweet corn, Tomatoes, Triticale, Turkeys, Vegetables seed, Vetches, Walnuts, Wheat	

Institutions		Infrastructure	
Education	**Event**	**Transport**	**Event**
School - Pre/Primary	100	Airport - Major Areas	4
School - Secondary	17	Airport - Major Terminals	2
School - Tertiary	12	Airport - Landing Grounds	42
School - Other (Combined, Special)	14	Road - Major (km)	524
Health and Welfare		Road - Arterial (km)	1,654
Hospital - Public	14	Railway - Station	48
Hospital - Private	3	Railway - Tracks (km)	1,441
Nursing Home	14	Maritime - Major Port	-
Retirement Home	23	Maritime - Ferry Terminal	-
Emergency Services		**Utility/Energy**	
Police Station	29	Power Station - Major Renewable	1
Fire Station	60	Power Station - Major Fossil Fuel	2
Ambulance Station	13	Transmission - Substation	17
Joint EM Facility	-	Transmission - Electricity Lines (km)	1,669
SES Facility	17	Liquid Fuel - Refineries	-
Rural/Country Fire Facility	148	Liquid Fuel - Terminals	-
Government Facilities		Liquid Fuel - Depots	6
Federal Court	-	Liquid Fuel - Petrol Stations	64
Medicare Office	5	Gas Pipeline (km)	232
Centrelink Office	12	Oil Pipeline (km)	-
Diplomatic Facility	-	Off-shore Extraction Platform	-
Consulate Facility	-	Telephone Exchange	23
Major Defence Facility	-	Waste Management Site	36
Correctional Facility	3	Waste Water Treatment Plant	15
Immigration Detention Facility	-	Major Dam Walls	22
Local Government Offices	10	Broadcasting Studio (ABC)	1

This product uses Geoscience Australia's National Exposure Information System (NEXIS) to estimate agricultural, building, demographic and infrastructure exposure within the event footprint. The NEXIS source information for each component includes:

Agricultural: The Agricultural Commodity value is obtained from ABS and is based on the inter-censual 2012-13 financial year period.

Building: NEXIS aims to capture all Residential, Commercial or Industrial buildings across Australia. The Building Exposure Information is collected through a variety of best available data including local and state government data, internal GA data, and commercially released data. All information is publicly available or supplemented with statistical data if not available. Building reconstruction and contents values are calculated based on September 2013 costings.

Demographic: NEXIS integrates Australian Bureau of Statistics (ABS) census 2011 information and the Social-Economic Indexes For Areas – Index of Relative Socio-economic Advantage and Disadvantage (SEIFA IRSAD) however the counts between NEXIS and ABS are not directly comparable due to the methodology used to apply ABS Statistical Area information to a NEXIS building location.

Infrastructure: Infrastructure Asset data is collected through a variety of best available data including local and state government data, internal GA data, commercially released data, publicly available information, and supplemented with information from online sources, owner/operator websites, annual reports and case studies.

The names of ABS Local Government Areas (LGA) and Urban Centres and Localities (population greater than 200) within the event footprint are also included in this report.

For more information: http://www.ga.gov.au/scientific-topics/hazards/risk-impact/nexis

NLIG QR Code

redi-EXPOSURE | Nominated High Risk Bushfire Areas | Ver 2.9.1 | 10 May 2016

Filters

Local Government Name * : BRISBANE CITY
Locality : (All)
Street : (All)
Rural Brigade Name : (All)
Station Area Name : (All)

LEGEND
Potential Bushfire Intensity
- 1 Very High
- 2 High
- 3 Medium

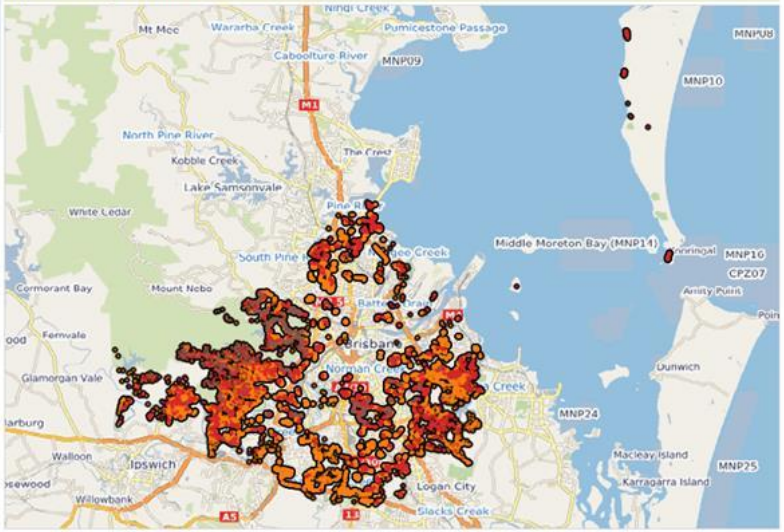
Table 1a. Population in Bushfire Prone Area

Locality	1 Very High	2 High	3 Medium	Grand Total
THE GAP	2,332	660	1,616	4,609
CARINDALE	230	1,075	1,217	2,522
TARRAGINDI	513	1,365	514	2,392
PARKINSON			2,216	2,216
CHAPEL HILL	209	1,098	871	2,178
PULLENVALE	90	586	1,401	2,077
BRIDGEMAN D..		909	1,158	2,068
FOREST LAKE		14	2,037	2,051
BARDON	217	427	1,299	1,943
BRACKEN RID..		516	1,238	1,754
BROOKFIELD	211	415	1,087	1,713
KARANA DOW..	8	298	1,177	1,483
DREWVALE		43	1,378	1,421
MOUNT CROS..	7	382	1,004	1,393
WACOL		29	1,352	1,381
KURABY		840	496	1,336
CARINA HEIGH..	58	250	1,006	1,314
CALAMVALE		502	809	1,311
MCDOWALL			1,296	1,296
FERNY GROVE	176	365	725	1,266
GUMDALE	44	518	632	1,194
KEPERRA	217	389	571	1,176
ANSTEAD	15	495	637	1,147
BELLBOWRIE		429	705	1,134
KENMORE HIL..	3	232	880	1,115
CHANDLER		183	928	1,111
TINGALPA		197	895	1,091
MOGGILL	9	168	840	1,017
BURBANK	5	302	710	1,017
OXLEY	10	121	873	1,003
DURACK		152	783	935
MITCHELTON	526	232	139	897

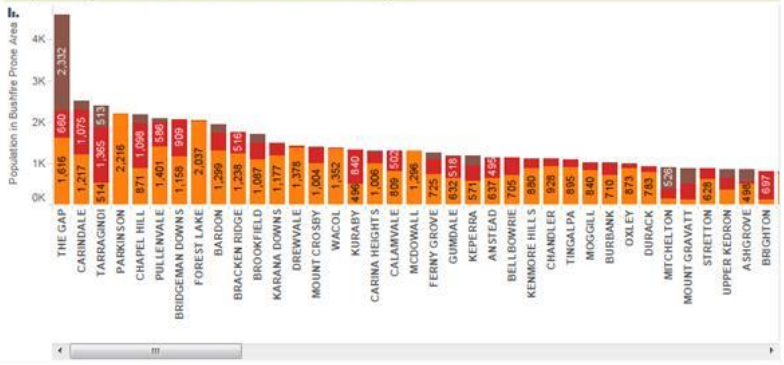
Table 1b. Buildings in Bushfire Interface Zone

Locality	A Vulnerable Persons Buildings	B Essential & Hazardous	C Residential Buildings	D Industrial, Commercial, Ag.	Grand Total
THE GAP		1	1,753	80	1,834
CARINDALE	6	1	926	162	1,095
TARRAGINDI	15	8	1,013	17	1,053
PARKINSON			690	45	735
CHAPEL HILL		1	778	29	808
PULLENVALE	10		1,075	34	1,119
BRIDGEMAN D..			843	70	913
FOREST LAKE			721	46	767
BARDON		1	816	31	848
BRACKEN RID..	3	3	713	23	742
BROOKFIELD	62		881	74	1,017
KARANA DOW..	11		694	22	727
DREWVALE			459	33	492
MOUNT CROS..		7	653	33	693
WACOL	55	3	148	162	368
KURABY	11		456	71	538
CARINA HEIGH..	1		501	15	517
CALAMVALE	4		465	47	516
MCDOWALL			506	19	525
FERNY GROVE	11		474	36	521
GUMDALE	28		673	91	792
KEPERRA	106	1	424	17	548
ANSTEAD			626	32	658
BELLBOWRIE			468	41	509
KENMORE HIL..	10		417	15	442
CHANDLER		1	631	65	697
TINGALPA	4	4	425	61	494
MOGGILL			516	190	706
BURBANK	2	6	873	74	955
OXLEY	11	1	292	38	342
DURACK	110	1	540	61	712
MITCHELTON			352	21	373

Map 1. Buildings in Bushfire Prone Area



Graph 2. Population in Bushfire Prone Area x Locality



MILESTONES PROGRESS

Literature Review - Completed

Existing Capabilities Review (Online Survey) – Completed

Stakeholders Workshop - Completed

Business Exposure Elements Framework – Completed

Built Environment Exposure Elements Framework – Completed

Reliability Framework – Progressing

Exposure Information Framework – Progressing

Australian Natural Hazards Exposure Framework

ANHEF Level 1

1) Federal & State Government Situational Awareness
2) Policy & Planning Purpose
3) Able to Aggregate to SA2 or larger geographic areas.

ANHEF Level 2

1) State & Local Government & Insurance Sector Situational Awareness
2) Response & Recovery Purpose
3) Able to Aggregate to Meshblocks or a building level.

ANHEF Level 3

1) Local Government, Researchers & Insurance Sector
2) Research & Analysis Purpose
3) Asset level with details
4) Privacy & Commercial-in-Confidence.

BUILDINGS | INFRASTRUCTURE | POPULATION | BUSINESS

Exposure Information Elements

FUNDAMENTAL INFORMATION			
Location	**Land Use**	**Insurance Status**	**Metadata**
Latitude Longitude Address Geometry - Point - Line - Area	Urban (ABS) Rural (ALUM Classification)	**PERSONAL** Life Insurance Income Protection Insurance Health Insurance Motor Insurance Travel Insurance **HOUSEHOLDS** Buildings Insurance Contents Insurance **BUSINESS** Worker's Compensation Professional Indemnity Insurance Liability Insurance **GOVERNMENT** State Owned Assets Flood Cover Insurance Malevolent Cover Insurance Compulsory Third Party Motor Public Liability Insurance **INSURANCE COMPANIES** Re-insurance	Keywords Geometry Feature Type Definition Data Source Spatial Accuracy Attribute Reliability Attribute Source Attribute Accuracy Data Currency Maintenance Cycle Revision Date Limitations Restrictions Contacts

Exposure Information Elements

BUILDINGS INFORMATION							
Usage	**Type**	**Structure System**	**Year Built**	**Size**	**Emergency Exit**	**Utility Connections**	**Replacement Value**
Residential Commercial Light Indust. Educational Health & Welfare Emergency-Services Government Community Recreational Mixed Use	Separate H Semi-detached H Apartment -Low Rise -Medium Rise -High Rise -Multistorey Commercial Shopping Mall Complex Agric. Sheds Warehouse Light Indust. Heavy Indust. Parking Struct. Religious Monuments/ Heritage MultipleBldg Public Venues	Foundation Internal Frame External Wall Façade Coverage Roof Shape Roof Type Orientation Floor Type Floor Height # of Storeys # of Basements Attachments Building Standard Emergency Exit Utility Source	Built Year Construction Period Retrofit Year Renovation Year	Land size Gross Floor Area Building Lettable Area Number of Dwellings Extensions Bedrooms Toilets Car Parks Annex buildings	Signage Evacuation Floors Evacuation Lifts Evacuation Stairwells Evacuation Plan Code Regulations Problems	Location of - Gas - Electricity - Water - Solar - Hydrants	Building Value Contents Value

Exposure Information Elements

TRANSPORT INFRASTRUCTURE …….					
Roadway	**Railway**	**Waterway**	**Bridges/ Culverts**	**Tunnels**	**Airports**
Type Constr. Material Carrying Cap Cap Utilization Year Upgraded Lane Width Shoulder Width Grade/Condition Bicycle Paths/ Footpaths Reconstr. Cost	Type Gauge Usage Control Facilities Rail Gates Train/Tram Condition Electrification Capacity Year built Year Upgraded Reconstr. Cost	Channel - Width - Depth - Purpose Harbours Wharves Sea Ferry Networks	Length Width Type Structure Type Design Spans Materials Purpose Capacity Year built Pier walls Abutment Reconstr. Cost	Usage Length Width Type Structure Shape Materials Purpose Equipment Year Built Capacity Reconstr. Cost	Functional Type LandingGround Traffic Control TowerSystems WeatherStation Safety Facility Security Fuel Depo Terminals Gates Customs Office Immigration Hangers Year Capacity Traffic Pattern Reconstr. Cost

Exposure Information Elements

TRANSPORT INFRASTRUCTURE …….				
Sea Ports	**Public Transport**	**Multimodal**	**Vehicles**	**Functions**
Port Name Port Type Berthing Structures Platform Type Protection Barriers Super-Structures Capacity Year Connections Protection Facilities Reconstr. Cost	Terminals Interchange Bus stops Railway Station Railway Yards Control Rooms Harbours	Connections Containers Cranes Stackers Trucks Barges Ships Planes Control Rooms Capacity Value	Number & Types - Aircrafts - Helicopter - Cargo - Buses - Trucks - Cars - Motor Cycles - Trains - Trams - Boats - Ferry - Ships	Schedules Routes Patterns Dependencies Capacity

Exposure Information Elements

ENERGY INFRASTRUCTURE …….						
Petroleum Wells	**Petroleum Refinery**	**Petroleum Terminals**	**Petroleum Transmission**	**Gas Processing**	**Gas Transmission**	**Gas Storage**
Ownership Well Status Depth Capacity Platform Year Built Reconstr. Cost	Ownership Products Processing Units Capacity Facilities Storage - Crude - Products - Waste Shipping Pollutant Electricity Year Built Reconstr. Cost	Ownership UnderGround AboveGround Vicinity Refinery Substances Facilities Capacity Turnover Year Built Blending Reconstr. Cost	Pipe Lines - Type - Size - Material - Capacity - Year built - Reconstr. Cost Oil Cargo Vessel - Material - Capacity - Value Ship-Ship Transfer Tanker Truck Rail Tanker	Ownership Products Processing Units Capacity Facilities Waste Liquefaction Shipping Electricity Value Year Built Reconstr. Cost	Pipe Lines - Type - Size - Material Capacity Year built Cargo Ships Capacity Vessel Cost Ship-Ship Tanker-Truck Rail Tanker Retail-Cylinders Reconstr. Cost Rebuild-Timeframe	Ownership Storage Tank Cylinders Storage Facilities - Reliquefaction - Blending Capacity Fuel Turnover Year Built Reconstr. Cost

Exposure Information Elements

ENERGY INFRASTRUCTURE …….				
Service Stations	**Electricity Generation**	**Electricity Transmission**	**Electricity Towers/Poles**	**Electricity Substations**
Ownership Site Category Tank Material Year Built Pumps Facilities Store Capital Fuel Turnover Reconstr. Cost	Ownership Type Storage Material Conveyors Boilers Generators Transformers Cooling Towers Chimneys Water Supply Switch Yard Facilities Capacity Year Built Reconstr. Cost	Ownership Lines Type Insulation Circuit Breakers Voltage Capacity Year Built Reconstr. Cost	Ownership Year Built Foundation Topography Height (Peak) Height (Cage) Height (Body) Width Circuits Conductors Types Design Materials Dead-end Reconstr. Cost	Ownership Type Usage Design Height Equipment Capacity Year Built Reconstr. Cost

Exposure Information Elements

COMMUNICATION INFRASTRUCTURE						
Telephone Exchanges	**Telephone Networks**	**Towers**	**Submarine Cables**	**Broadcasting**	**Satellite Earth Stations**	**Postal/Courier**
Ownership Area of coverage Capacity - Frequency - Switches - Internet - # of lines Year Built Equipment Rebuilding-Timeframe Reconstr. Cost	Ownership Telephone line Switch nodes Materials (Coper/Fibre) Year Built Rebuilding Timeframe Reconstr. Cost	Ownership Tower Foundation Site Topography Tower Purpose Height of Tower Tower Design Tower Materials Year Built Rebuilding Timeframe Reconstr. Cost	Ownership Cable Network Cable Landing Station Frequency/ Bandwidth Cable Type Cable Capacity Offshore Destination Year Built Rebuilding Timeframe Reconstr. Cost	Ownership Broadcasting Type Purpose Site Name TV Station Radio station Studio Facilities Coverage Area Frequency Equipment Cable Networks Value Rebuilding Timeframe Reconstr. Cost	Ownership Type of Antenna # of Antennas Size of Antenna Capacity Equipment Construction Year Built Rebuilding Timeframe Reconstr. Cost	Ownership Mail Sorting Centres Delivery Vehicles

Exposure Information Elements

URBAN WATER INFRASTRUCTURE				WASTE MANAGEMENT	HAZARDOUS SUBSTANCES	MAJOR INDUSTRIES
Potable Water Catchment	**Potable Water Treatment**	**Waste Water Treatment**	**Water Transmission Networks**			
Catchment Area Dams - Foundation - Length - Type - Spillway type - Material - Year Built - Reconstr. Cost - Height Gr. Water Well Criticality Equipment Pumping Storage Capacity Tanks/ Reservoirs	Ownership Storage Tank - Size - Foundation - Construction - Year Built/Upgrade Equipment: - Clarification - Filtration - Disinfection -Desalination -SCADA -Repair Timeframe Reconstr. Cost	Ownership Storage Tank Aeration Tank Sludge Tank Methane Gas-Chamber Equipment - Machinery - Disposal - Energy - Odor - Disinfection - Bio-chemical - Filtration Repair Timeframe Reconstr. Cost	Ownership Reticulation-Area Reticulation-Type Pumping-Stations Pipes Network Pipes Size Pipes Diameter Pipes Material Filtering Connectors Year Built Year Upgraded Repair Timeframe Reconstr. Cost	Collection Centres Transfer Stations Collection Trucks Incineration Plants Recycling Plants Landfills Waste type Energy Recovery Facility Reconstr. Cost	Facility usage List of substances Physical characters Chem. Characters Airborne thresholds Pictogram Hazard code Hazard Character Toxicity Severity Symptoms Key suggestions	Ownership Industry name Industry Structure Industry Usage Total Floor Area # of Buildings List of Facilities Year Built Building Materials Equipment Storage Warehouse Working Hours WasteManagement Liability Issues Critical Equipment Production Capacity Reconstr. Cost

Exposure Information Elements

PRIMARY INDUSTRIES							
Agri. Crops	**Agri. Horticulture**	**Agri. Diary**	**Agri. Animal**	**Fisheries Wild**	**Fisheries Aquaculture**	**Forestry**	**Mining**
Farm Size Crop Type Crop Calendar Crop Value Farm house Equipment Storage Size Processing Plant	Farm Size Plantation Type # of Plants Age of Plants Yield Pattern Equipment Storage Size Processing Plant Farm Value	Farm Size Animals Type # of Animals Age Mix of Animals Dominant Breed Sub-dominant Breed Equipment Ancillary Buildings Products Farm Value	Farm Size Animals Type Farming Type # of Animals Age Mix of Animals Dom. Breed Sub-dom. Breed Equipment Ancillary Buildings Products Farm Value	Fishing Zones Fishing Restrictions Endangered Species Port Location Trawlers Nets Total Capacity Storage Capacity Processing Plants	Farm Size Fish Type Fishing Stock Products Pattern Equipment Processing plants Ancillary Buildings Farm Value	Ownership Forest Area Status Structure Dm.Species Sub-dm. Species Products -Hard wood -Soft wood -VeneerLogs -Pulp Logs -Oils	Ownership Mining Area Operating Status Operating Type - Surface - Underground Commodities Equipment Production-Capacity Value

Exposure Information Elements

POPULATION						
Remoteness Status	**Demographic Composition**	**Socio-Economic Status**	**Population Health**	**Ambient Population**	**Risk Response**	**Social Capital**
	Age profile Density Gender Migration Indigenous Ethnic Household	Household Income Household Dwelling Tenure Status Insurance Status	Physical health status Mental health status Disability status	Spatio-Temporal - Weekdays - Weekends Tourism Event Specific	Transport Access	Tenancy

Exposure Information Elements

BUSINESS/ECONOMIC						
Business Type	**Business Structure**	**Space Usage**	**Business Operations**	**Number of Employees**	**Business Size**	**Macro Economic**
ANZSIC - Division - Subdivision - Group - Class	Sole Trader Household Partnership Trust Corporate Government Non-Profit	Corp. Office Operational - Retail …… - Wholesale - Manufacturing - Workshop - Storage - Education - Parking - Construction - ……	Cash Flow Cash Reserves Revenue Liabilities Age Track Record Operation. Hours Insurance Status Multi Sectors Multi Locations	Full Time Part Time Casual Permanent Non-Perm. Contractors Consultants Tenure	Employees - Sole Trader - Small - Medium - Large Turnover - Small - Medium - Large Assets - Fixed - Capital - Multi National	Labour Supply & Demand Input-Output Analysis CGE Analysis ……..

ANHEF – AVAILABLE DATA SOURCES

Highlights

- No agency is managing the exposure data for national coverage with consistency
- ABS – Aggregated info. of Population Census, Input-Output Analysis, National Accounts, Economic Activity, Agric. Census etc.
- GA – NEXIS has a statistical version on buildings and population, location information for some infrastructure data available
- ABR,ATO, BITRE, NIEIR, Universities etc. have relevant information
- NSW EICU – Comprehensive for Sydney and location information of infrastructure for other areas in NSW.
- State Spatial organisations have location information for infrastructure
- Tasmania, SA & WA have buildings details.
- State Emergency Organisations has some level of information
- City Councils,
- Company 360, ASX, ASIC, Insurance Sector, Company Reports, Utility Companies
- Researchers has no fundamental information to provide for disaster management

Gaps

- No agency is managing comprehensive exposure data for the national coverage consistently

RELIABILITY FRAMEWORK

Provenance

1) History of the Data
2) To Be Categorised
    a) Authoritative & Original Data
    b) Derived Statistically
    c) With Assumptions
3) Data Indexing (?)

Reliability

1) ANHEF Levels
2) Reliability Indicators
3) Translate the Indicators .

STAKEHOLDER ENGAGEMENT ROAD SHOW

Queensland

- Department of Fire and Emergency Services
- Queensland Reconstruction Authority
- ESRI Australia
- Department of Natural Resources

New South Wales

- NSW State Emergency Services
- NSW Rural Fire Service
- Emergency Information Coordination Unit
- Insurance sector

West Australia

- Department of Fire and Emergency Services
- State Emergency Management Committee
- University of West Australia

South Australia

- SA Fire and Emergency Services Commission (SAFCOM)
- University of South Australia

Victoria

- Australasian Fire and Emergency Service Authorities Council (AFAC)
- VIC Country Fire Authority (CFA)
- VIC State Emergency Services
- Universities

Emergency Management Spatial Information Network Australia (EMSINA)

……..

CHALLENGES

Maintain List of Known Data Sources

Implementation of Entire Framework into a Database

Acceptance of Standard Attributes of Exposure Elements

Standards in Maintaining Data Provenance

Develop and Maintain the Currency of Models

UTILISATION ROADMAP

CLUSTER NAME: HARDENING BUILDINGS AND INFRASTRUCTURE PROJECTS

PROJECT NAME: NATURAL HAZARD EXPOSURE INFORMATION FRAMEWORK PROJECT

Currently, the most comprehensive and detailed national exposure information is held by Geoscience Australia (GA), in the National Exposure Information System (NEXIS). This new BNHCRC framework will meet future requirements of end users, highlight data gaps and bring consistency for the future information systems.

The Project will develop the framework with a comprehensive list of exposure information requirements for situational awareness and supports research for impact analysis to assist both tactical and strategic disaster management from multiple hazards. The outputs will be used to improve existing exposure database capabilities, various State Emergency Services and various stages of disaster management and risk assessment models. The improved databases will strengthen operational capabilities in the longer term.

For a better utilisation, the framework needs to be aligned with Australian “Foundation of Spatial Data Framework” (FSDF). The FSDF underpins the spatial enablement of the data needed for diverse range of decision making in both government and industry. The exposure information framework is comprehensive and focus on the community safety end users. This alignment will enable the community safety users to understand the data value chain and reliability for a specific use/user. As a first step, a framework database will be prepared adopting the FSDF guidelines that would help the end users to understand the data gaps, prioritise their investments and national exposure information system development projects.

This Research will assist government (national, state and local) and industry end users to help quantify what and how much, will and has, been impacted by a range of disasters.

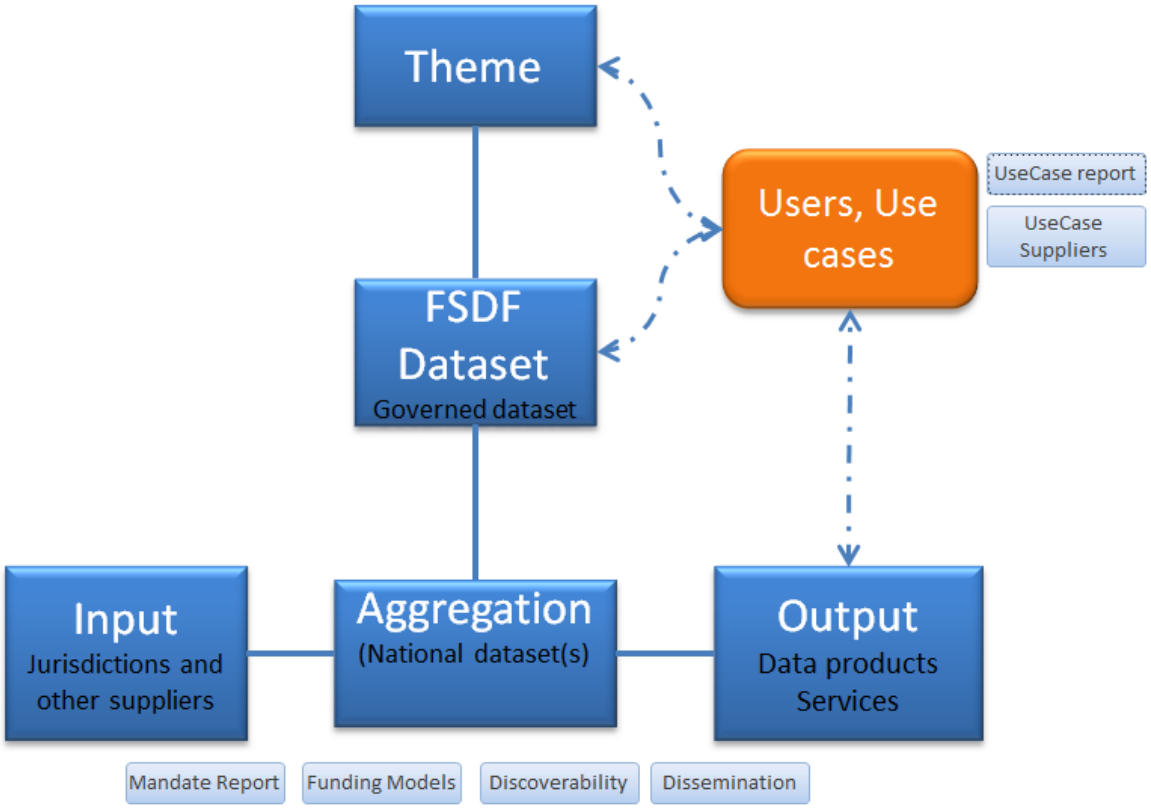
ANZLIC the Spatial Information Council

Australian Government

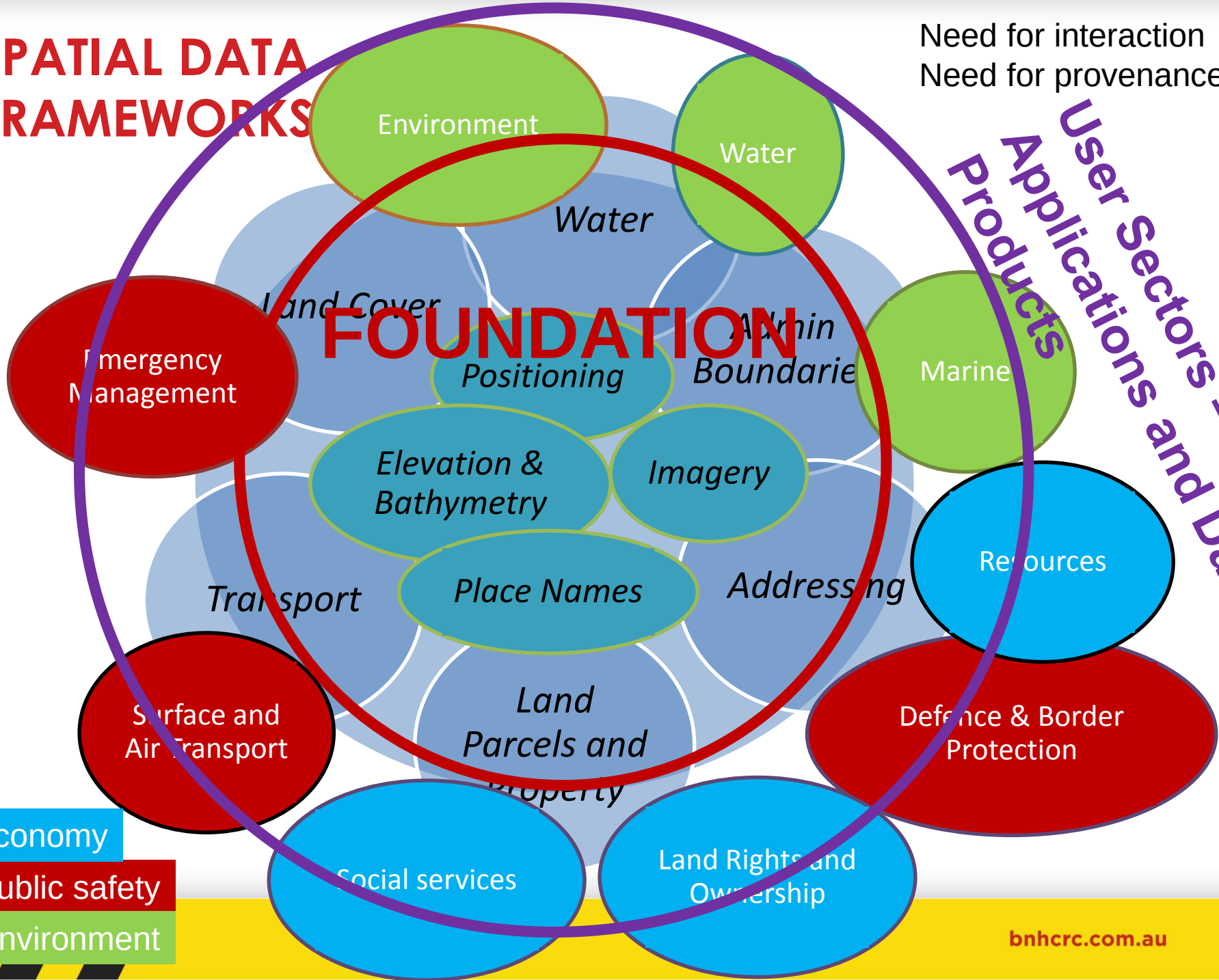
ICSM ANZLIC COMMITTEE ON SURVEYING & MAPPING

FOUNDATION SPATIAL DATA FRAMEWORK

Information knowledge platform



SPATIAL DATA FRAMEWORKS



DIGITAL KNOWLEDGE PLATFORM FOR EXPOSURE FRAMEWORK

The exposure information framework is integrated with the broader Australian Foundation Spatial Data Framework and developed a business intelligence database to provide the current status and gaps of the exposure data availability for end users. Exposure database (spatial, attribute and metadata) for a small geographic area developed for response and recovery planning to demonstrate the impacts of having quality data for situational awareness. This Research will demonstrate government (national, state and local) and industry end users to help quantify what and how much, will and has, been impacted by a range of disasters.

Research Project at Geoscience Australia

Key Research Milestones

* Review of needs & existing capabilities
* Built environment exposure information framework report completed
* Business exposure information report completed
* Reliability assessment framework completed
* Final framework report completed

Key Utilisation Activities

* Stakeholder Engagement Workshop
* Stakeholder briefings on framework
* Develop prototype exposure knowledge platform
  - Develop high level conceptual model
  - Link with Foundation Spatial Data Framework (FSDF)
  - Demonstrate prototype to end-users
* Implement online querying and reporting
* Promotion of knowledge platform

Key Utilisation Milestones

* Knowledge platform prototype developed
* Final framework publication released
* Platform deployed online (cloud-based)
* End-user access for pilot area(s) - (tbc)

2015 2016 2017 2018 2019 2020

Who is doing it?
- Geoscience Australia
- State Emergency Services
- ANZLIC

Who needs to be involved?
- State Emergency Services
- State Reconstruction Authority
- Rural fire Services
- Metropolitan Fire Services
- Insurance industry
- AFAC

What are the key challenges?
- Resources
- Customisation of and linkage to the FSDF database
- Source and maintain relevant information
- Insurance industry support
- Understanding by users

What are the key opportunities?
- Increased discoverability & analysis of existing information sources
- Creation of a registry of information requirements as they evolve
- Reduced effort to access exposure information sources

What will it cost?
- TBA

THANKYOU

Phone: +61 2 6249 9732
Web: www.ga.gov.au
Email: Krishna.Nadimpalli@ga.gov.au
Address: Cnr Jerrabomberra Avenue and Hindmarsh Drive, Symonston ACT 2609
Postal Address: GPO Box 378, Canberra ACT 2601