



Natural Hazard Exposure Information Modelling Framework - Utilisation Funding Extension

Research advisory forum / 2019

Mark Dunford / Geoscience Australia

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HAZARDSCRC

**AUSTRALIAN NATURAL HAZARDS EXPOSURE
INFORMATION FRAMEWORK**

Guidelines for National Consistency and Comprehensive Information

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Australian Government
Geoscience Australia

**UNIVERSITY OF
CANBERRA**

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MELBOURNE**

Scope

Background

- The Natural Hazard Exposure Information Framework, completed in July 2017, was developed based on a wide range of end user requirements and highlights existing data availability and gaps.
- The objective of the framework was to fully describe and categories exposure information elements in a consistent framework to be use for reference in developing future exposure systems

Aim

- The utilisation extension to this project was aimed to align Geoscience Australia's National Exposure Information System (NEXIS) and other spatial data capabilities with a range of key elements from the Natural Hazard Exposure Information Framework, to develop a web-based tool to discover and access a broader range of exposure information on a national scale.
- A tool designed to allow end-users to customise their spatial area of interest and exposure information content.
- Access to nationally consistent, easily accessible exposure information to benefit emergency management situation awareness, risk assessments, forecasts and research for impact analysis.
- Ultimately to help to provide information to enable better decisions by emergency managers, government and other to reduce loss of life and economic impact.



AUSTRALIAN EXPOSURE INFORMATION PLATFORM

UNCOVERING NATIONAL EXPOSURE

Access to nationally consistent exposure information is fundamental for all decision makers. The Australian Exposure Information Platform (AEIP) provides information on building, businesses and people; public facilities and infrastructure assets; agricultural commodities, and environmental holdings within Australia.



CREATE

Create your own exposure report using the AEIP interactive map

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CONNECT

Connect your own application for custom exposure reports via the AEIP API

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FAQ

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FORUM

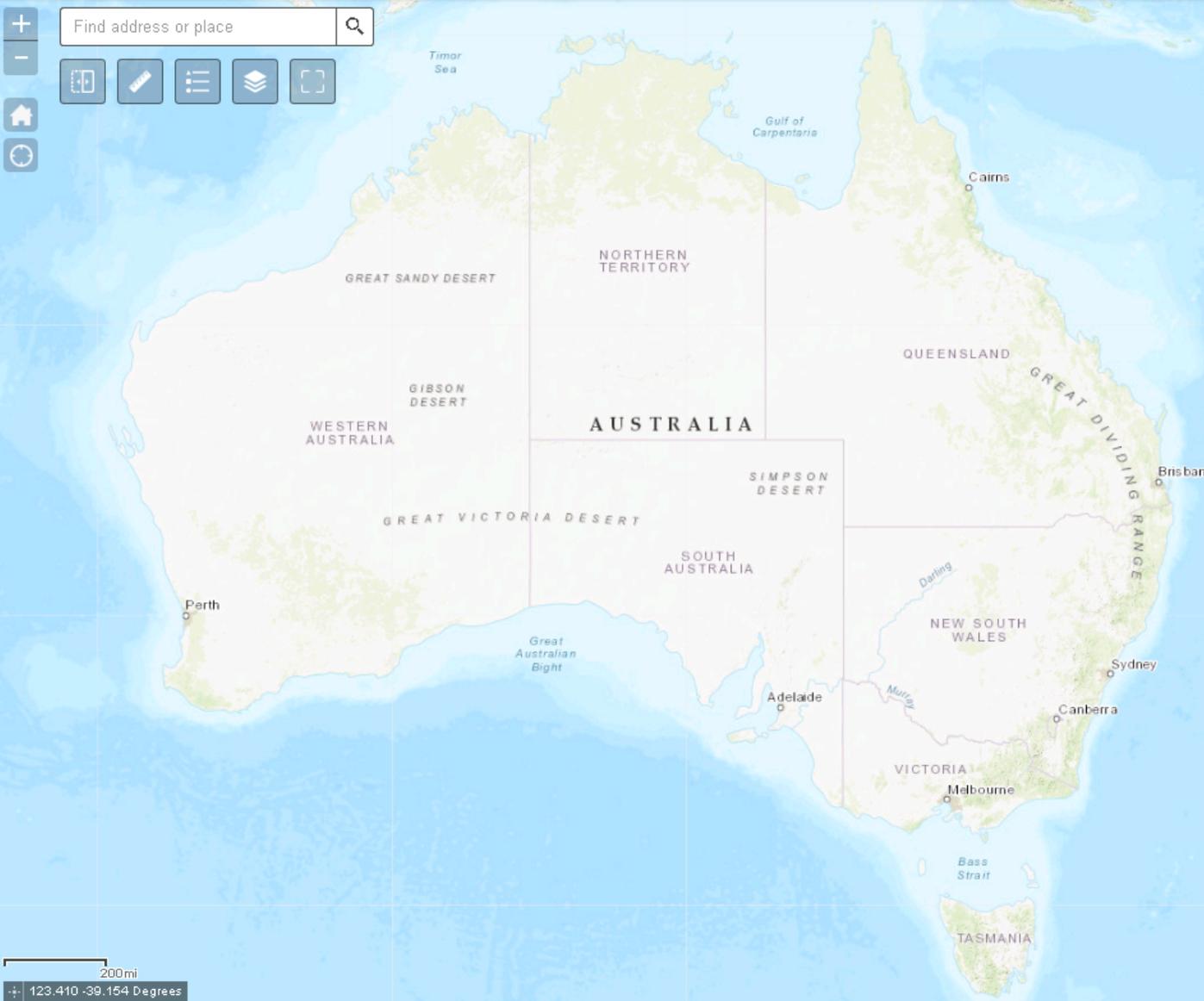
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Australian Exposure Information

Find address or place



Create Exposure Report

Report Name

No Event/Incident

Report Type

e.g. Brisbane Flood Event

Define your Area of Interest:

Upload Draw

Provide Area of Interest Source:

e.g. Brisbane City Council (2010)

Select Exposure Theme(s):

- Agriculture
- Building
- Business
- Environment
- Infrastructure
- Institution

Provide Email Address:

e.g. name@example.com

Submit Request

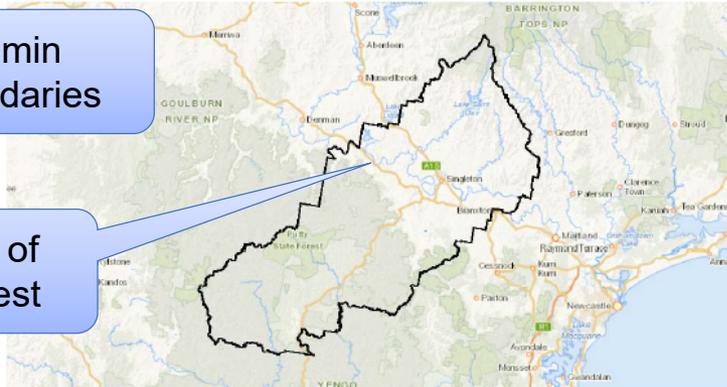


Event

Geoscience Australia - Exposure Report

Event name: Singleton (A) Local Government Area
 Event type: No Event/Incident
 Report Date: 28-08-2018 17:17:44 (AEST)

LGAs within the event footprint: Singleton (A)
 Localities within the event footprint: Branxton, Broke (L), Greta, Singleton
 Footprint data source: Australian Bureau of Statistics (2017)



Admin boundaries

Area of Interest

Buildings

Demographics

Building Exposure, V9 September 2017		Dwelling estimates where residents:		
	Event	Demographic*	Event	NSW(Av)
Population count	35,718	Are all aged 65 or over	13.8%	17.4%
Dwelling count	15,070	Includes persons aged 14 years and under	27.9%	25.3%
Building count	13,014	Includes an Indigenous person	7.4%	3.6%
Pre 1980 construction count	1,908	Are a single parent family	6.2%	5.4%
Pre 1990 probable asbestos containing products**	4,708	Are in need of assistance for self-care activities	9.5%	10.5%
Reconstruction value	55,104,140,000	Include persons not proficient in English	0%	1.3%
Contents value	51,026,310,000	Do not have access to a motor vehicle	4.8%	9.7%
Completed	540	No one has completed Year 12 or higher	23.0%	15.5%
Under construction	53,992,550,000	Moved to the region in the last 1 year	8.5%	11%
Under construction	412	Moved to the region in the last 5 years	20.4%	30%
Reconstruction value	51,618,950,000	Top 5 employing industry*:		
2011 SEIFA IRSAD*	-	ABS Census 2016 data not available for this release		
Dwellings in area with a SEIFA decile 10 score (most advantaged)	-	Economic*	Event	NSW (Av)
Dwellings in area with a SEIFA decile 9 score	1,500	Are low income (\$1,499/week)	22.6%	23.8%
Dwellings in area with a SEIFA decile 8 score	2,662	Are medium income (\$1,500-\$1,499/week)	52.2%	51.5%
Dwellings in area with a SEIFA decile 7 score	1,052	Are high income (\$1,500/week)	24.1%	23.4%
Dwellings in area with a SEIFA decile 6 score	1,296	Are in public housing	6.4%	4.8%
Dwellings in area with a SEIFA decile 5 score	2,012	Are all unemployed	1.1%	0.9%
Dwellings in area with a SEIFA decile 4 score	3,832	*Residential demographic information is not provided for dwelling counts less than 20		
Dwellings in area with a SEIFA decile 3 score	468	**Buildings may contain asbestos materials, especially in the eaves, internal and external wall cladding, ceiling, roof sheeting, and in wet areas such as bathrooms and showers, and in roof sheeting and fences		
Dwellings in area with a SEIFA decile 2 score	412			
Dwellings in area with a SEIFA decile 1 score (most disadvantaged)	1,836			
Dwellings in area without a SEIFA score	-			

Institution Exposure			
Category	Event	Government Facilities	Event
Education			
School - Pre/Primary	12	Federal Court	-
School - Secondary	1	Medicare Office	1
School - Tertiary	1	Centrelink Office	1
School - Other (Combined, Special)	2	Diplomatic Facility	-
Health and Welfare		Consulate Facility	-
Hospital - Public	1	Major Defence Facility	1
Hospital - Private	-	Correctional Facility	-
Nursing Home	1	Immigration Detention Facility	-
Retirement Home	3	Local Government Offices	1
Emergency Services			
Police Station	3		
Fire Station	1		
Ambulance Station	1		
SES Facility	1		
Rural/Country Fire Facility	20		

Institutions

Infrastructure Exposure			
Category	Event	Transport	Event
Utility/Energy			
Power Station - Major Renewable	-	Airport - Major Areas	1
Power Station - Major Fossil Fuel	3	Airport - Major Terminals	-
Transmission - Substation	2	Airport - Landing Grounds	10
Transmission - Electricity Lines (km)	370	Road - Major (km)	103
Liquid Fuel - Refineries	-	Road - Arterial and Sub-arterial (km)	457
Liquid Fuel - Terminals	-	Railway - Station	2
Liquid Fuel - Depots	-	Railway - Tracks (km)	162
Liquid Fuel - Petrol Stations	8	Maritime - Major Port	-
Gas Pipeline (km)	-	Maritime - Ferry Terminal	-
Oil Pipeline (km)	-		
Off-shore Extraction Platform	-		
Waste Management Site	3		
Waste Water Treatment Plant	1		
Major Dam Walls	2		
Telephone Exchange	11		
Broadcasting Studios (Radio and TV)	-		

Infrastructure

Business Exposure, ABR 2017			
Category	Event	Number of Registered Charity Organisations:	Event
Number of businesses	3,871	Number of Primary Producers*	604
Accommodation and Food Services	125	Agriculture and Fishing Support Services	50
Administrative and Support Services	266	Aquaculture	-
Agriculture, Forestry and Fishing	613	Dairy Cattle Farming	33
Arts and Recreation Services	82	Deer Farming	-
Construction	483	Fishing	-
Education and Training	109	Forestry and Logging	11
Electricity, Gas, Water and Waste Services	8	Forestry Support Services	5
Financial and Insurance Services	180	Fruit and Tree Nut Growing	56
Health Care and Social Services	141	Hunting and Trapping	-
Information Media and Telecommunications	21	Mushroom and Vegetable Growing	6
Manufacturing	154	Nursery and Floriculture Production	-
Mining	34	Other Crop Growing	10
Other Services	352	Other Livestock Farming	45
Professional, Scientific and Technical Services	363	Poultry Farming	-
Public Administration and Safety	14	Sheep, Beef Cattle and Grain Farming	388
Rental, Hiring and Real Estate Services	303		
Retail Trade	252		
Transport, Postal and Warehousing	180	*Primary producer information not provided for counts less than 5	
Wholesale Trade	73		
Unclassified businesses	118		

Business

Agricultural Exposure		
	Event	NSW (Prop)
Agriculture Commodity Estimated Value 2014-15:	\$50,265,000	0.5%
Estimated Agricultural Area (Ha):	162,800	0.3%
Commodities include: Apples, Asparagus, Barley, Beehives, Broccoli, Capsicums, Carrots, Cauliflowers, Cereal for hay, Cereals other purposes, Chickens layers, Chickens meat, Chickpeas, Cultivated turf, Cut flowers, Dairy cattle, Ducks, Eggs, Goats, Grapefruit, Grapes, Horses other, Horses stud, Lemons, Lettuces, Limes, Macadamias, Maize, Mandarins, Meat cattle, Melons, Nurseries, Oats, Olives, Oranges, Other cereals, Other citrus fruit, Other crops, Other crops for hay, Other livestock, Other orchard fruit, Other poultry, Other vegetables, Pasture for hay, Pasture seed, Pecans, Pigs, Plums, Potatoes, Pumpkins, Sheep lambs, Sweet corn, Turkeys, Vegetables seed, Wheat		

Agricultural

Environmental Exposure		
World Heritage List, 2017:		
Declared property:	Total Area: 154,242ha	
Gondwana Rainforests of Australia (701.5ha, 0.2%), The Greater Blue Mountains Area (153,540.8ha, 14.8%)		
Buffer zone:	Total Area: 0ha	
No features within the nominated boundary		
National Heritage List, 2016: (Status = Listed places and Within listed place only)		
Historic:	Total Area: 0ha	
No features within the nominated boundary		
Indigenous:	Total Area: 0ha	
No features within the nominated boundary		
Natural:	Total Area: 158,563ha	
Gondwana Rainforests of Australia (701.5ha, 0.2%), The Greater Blue Mountains Area (157,861.9ha, 15.1%)		
Commonwealth Heritage List, 2017: (Status = Listed places and Within listed place only)		
Historic:	Total Area: 1ha	
Murinbin House Group (0.7ha, 100.0%)		
Indigenous:	Total Area: 0ha	
No features within the nominated boundary		
Natural:	Total Area: 0ha	
No features within the nominated boundary		
Collaborative Australian Protected Areas Database (CAPAD), 2016. IUCN Protected Area Management Categories:		
Ia - Strict Nature Reserve:	Total Area: 288ha	
Belford (288.4ha, 100.0%)		
Ib - Wilderness Area:	Total Area: 159,882ha	
Barrington Tops (440.1ha, 0.6%), Wollemi (112,092.5ha, 22.3%), Yengo (47,348.9ha, 28.2%)		
II - National Park:	Total Area: 5,908ha	
Mount Royal (5,908.2ha, 84.7%)		
III - Natural Monument or Feature:	Total Area: 0ha	
No features within the nominated boundary		
IV - Habitat/Species Management Area:	Total Area: 12,225ha	
Forestry Management Areas in Morisset (0.1ha, 3.9%), LNE Special Management Zone No1 (11,964.5ha, 9.8%), UNE_LNE_OldGrowth (260.7ha, 1.4%)		
V - Protected Landscape/Seascape:	Total Area: 0ha	
No features within the nominated boundary		
VI - Protected area with sustainable use of natural resources:	Total Area: 0ha	
No features within the nominated boundary		
Wetlands of International Importance (Ramsar Sites), 2016:	Total Area: 0ha	
No features within the nominated boundary		
Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 Regions:		
Total Area: 490,216ha		
NSW North Coast (100,759.4ha, 2.5%), Sydney Basin (389,456.3ha, 10.7%)		
Natural Resource Managements (NRM), 2016 Regions:	Total Area: 490,560ha	
Central Tablelands Local Land Services Board (108.9ha, 0.0%), Greater Sydney Local Land Services Board (0.0ha, 0.0%), Hunter Local Land Services Board (490,451.1ha, 14.2%)		

Environmental

Exposure Report Job ID: 13972

This report is a summary of agricultural, building, business, demographic, institution, infrastructure and environmental exposure information within the area of

The exposure information in this report is sourced from:
Agricultural Exposure: The list of agricultural commodities and estimated value is based on the Australian Bureau of Statistics (ABS) Value of Agricultural Commodities Produced (VACP) 2014-15, and Agricultural Commodity Estimates by Region 2011. www.ga.gov.au/metadate-gateway/metadate/record/gcat_82222
Building Exposure: Residential, Commercial and Industrial exposure information is collated from a variety of best and publicly available data. Building reconstruction and contents values are adjusted to March 2017 costings. www.ga.gov.au/metadate-gateway/metadate/record/gcat_82220
Business Exposure: The Australian Business Register is a comprehensive database of identity information provided by businesses and other organisations when they register for an Australian Business Number (ABN). It provides information on the type of businesses, type of primary producers and not-for-profit organisations by ANZSIC Classifications. The data is based on the main business location of the registration. <https://abr.gov.au/About-us/Our-work/The-ABR-explained/>
Demographic Exposure: Demographic exposure applies the ABS 2016 Census statistics and ABS 2011 Social-economic Indexes For Areas – Index of Relative Socio-economic Advantage and Disadvantage (SEIFA IRSAI) to a NEXIS building location. Some areas cannot be assigned a score because the population is too small or the quality of the data is not good enough.
Institution Exposure: Institution asset data is collected through a variety of best available data. This data is either not available publicly because they are government departmental data and or commercially available data products.
Infrastructure Exposure: Infrastructure asset data is collected through a variety of best and publicly available data. www.ga.gov.au/scientific-topics/national-location-information/built-environment-and-exposure
Environmental Exposure: Environmental data is sourced from the Department of Environment and Energy, and represents the most recently released publicly available data. www.environment.gov.au

The ABS Australian Statistical Geography Standard (ASGS) provides an approximation of officially gazetted Local Government Areas (LGA) 2017, as defined by each State and Territory, and Urban Centres and Localities (UCL) 2016 where population is greater than 200. [www.abs.gov.au/websteds/D3310114.nsf/home/Australian+Statistical+Geography+Standard+\(ASGS\)](http://www.abs.gov.au/websteds/D3310114.nsf/home/Australian+Statistical+Geography+Standard+(ASGS))

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

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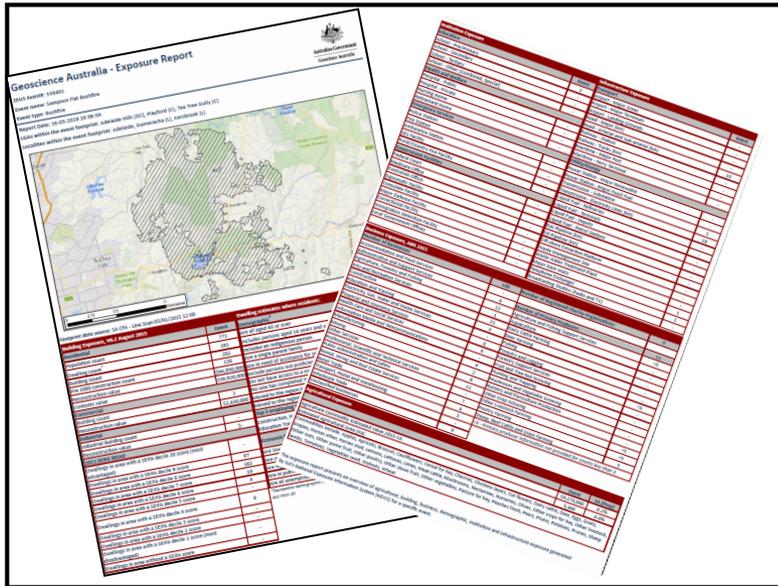
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Geoscience Australia – Exposure Report Version 3.3

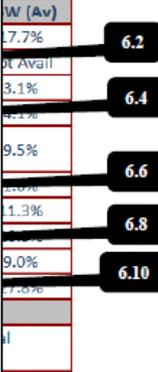
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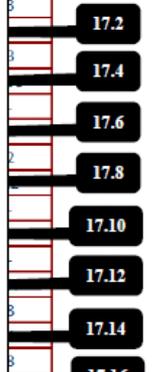
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Australian Exposure Information Platform (AEIP) Summary Stats	Aug 2018 – June 2019
Exposure Reports produced	1966
Domain users	117
Users (email addresses)	289

Top 20 AEIP domain users in order			
State Govt.	QLD	Queensland Reconstruction Authority	682
State Govt.	WA	Department of Fire and Emergency Services	385
Cwlth Govt.	ACT	Geoscience Australia (supporting CCC)	224
Industry	National	Meridian Urban	46
Cwlth Govt.	ACT	Department of Home Affairs	30
Industry	National	Map Data Services	29
State Govt.	QLD	Department of Communities, Disabilities Services and Seniors	26
Industry	National	Hydrological and Risk Consulting	25
Industry	Global	AECOM (American multinational engineering firm)	22
Industry	National	Water Technology	18
State Govt.	NSW	NSW Rural Fire Service	18
Local Govt.	QLD	Townsville City Council	17
State Govt.	SA	South Australian Government	13
State Govt.	QLD	Queensland Health	12
State Govt.	Vic	Vic SES	11
University	WA	University of Western Australia	11
Local Govt.	QLD	Mackay Regional Council	10
Local Govt.	WA	Shire of Harvey	10
USA - NFP	NSW	Team Rubicon Disaster Response	10
Local Govt.	NT	Northern Territory Government	6

Next

- Stakeholder users surveys (x2) sent to 260 users and 20 high end users
- Enhancements and bug fix identified for production version
- Production version available 23 August 2019 at AFAC
- Incorporating exposure information, via API, in GA's Tropical Cyclone Risk Model



Thank you.

Questions?

www.aeip.ga.gov.au

